



# Tanganyika Territory.



## ANNUAL MEDICAL REPORT

FOR THE

YEAR ENDING DECEMBER 31st, 1923.



# Tanganyika Territory.

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**ANNUAL MEDICAL REPORT**

**FOR THE**

**YEAR ENDING DECEMBER 31st, 1923.**

Donation 584

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# TANGANYIKA TERRITORY.

## Annual Medical Report, 1923.

### I. ADMINISTRATIVE.

#### (a) — STAFF.

1. The establishment, as authorised by the Estimates 1922-1923, was as follows :—

##### EUROPEAN.

Principal Medical Officer.	14 Nursing Sisters.
Deputy Principal Medical Officer.	1 Clerk.
Senior Sanitation Officer.	1 Storekeeper
Director of Laboratory.	1 Assistant Storekeeper
3 Senior Medical Officers.	1 Laboratory Assistant.
1 Dental Surgeon.	1 Superintendent, Lunatic Asylum.
21 Medical Officers.	1 Matron, Lunatic Asylum.
2 Senior Nursing Sisters.	7 Sanitary Superintendents.

##### ASIATIC.

23 Sub-Assistant Surgeons.	2 2nd Grade Clerks.
26 Compounders.	5 3rd and 4th Grade Clerks.

##### NATIVE.

A varying number of Clerks, Hospital Attendants, Dispensers, Sanitary Inspectors, Vaccinators, Messengers and Labourers. Three Asiatic Sanitary Inspectors are employed under the heading of Native Sanitary Inspectors.

2. For the year 1923-1924 the authorised establishment was increased by :—

##### *European.*

##### *Asiatic.*

3 Medical Officers.	7 Sub-Assistant Surgeons.
3 Nursing Sisters.	1 3rd or 4th Grade Clerk.
1 Clerk.	

and was reduced by :—

6 Asiatic Compounders.

3. Shortages on the Establishment :—

At the beginning of 1923 there were the following shortages :—

##### *European.*

##### *Asiatic.*

1 Senior Nursing Sister.	1 Sub-Assistant Surgeon.
1 Nursing Sister.	1 Compounder.
2 Sanitary Superintendents.	

At the end of 1923 the shortages were as follows :—

##### *European.*

##### *Asiatic.*

4 Medical Officers.	1 Sub-Assistant Surgeon.
1 Senior Nursing Sister.	
1 Clerk.	

N.B.—Shortages due to absence on leave are not included above.

The average number of Senior Medical Officers and Medical Officers available for executive duties in Tanganyika Territory during 1923 was 15.26 or, deducting 2 employed as Medical Officers of Health, 13.26, the rest being on home leave or acting in the Administrative or Laboratory Divisions.

The Deputy Principal Medical Officer was on leave throughout the year. Dr. Owen Prichard filled his post until he proceeded on leave on March 5th. Dr. G. G. Butler, Director of the Laboratory, acted as Deputy Principal Medical Officer from July 7th to the end of the year, Dr. W. E. Haworth taking over his duties at the Laboratory.

The post of Senior Medical Officer, rendered vacant on 16th September, 1923, by the retirement on pension of Dr. Owen Prichard, was filled by the promotion of Dr. P. F. Nunan, Medical Officer, Kenya Colony. Dr. Nunan had not arrived in the Territory to take up his duties at the end of the year.

The following officers acted as Senior Medical Officer :—

At Tabora : Dr. J. G. McNaughton—from February 14th to the end of the year.

At Dar-es-Salaam : Dr. J. H. Parry—from the beginning of the year until February 14th.

The following officers acted as Medical Officers of Health :—

At Dar-es-Salaam : Dr. R. Nixon—from the beginning of the year until May 20th ;  
Dr. R. R. Scott, M.C.—from May 21st to the end of the year.

At Tanga : Dr. A. I. Meek—from the beginning of the year until June 12th ; Dr. R. Nixon—from June 13th to November 27th ; Dr. A. I. Meek—from November 28th to the end of the year.

The following Nursing Sisters acted as Senior Nursing Sister :—

At Tanga : Miss J. Frazer—from 25th April to the end of year.

At Dar-es-Salaam : Miss Bishop—throughout the year.

Mr. H. W. Hassard acted as Medical Storekeeper from 21st February to 5th November.

#### *Appointments :—*

The following appointments were made during the year :—

Dr. P. F. Nunan (M.O., Kenya Colony), to be a Senior Medical Officer, 29th December, 1923.

Dr. J. H. Thomson (M.O., Kenya Colony), to be a Medical Officer, 4th October, 1923.

Dr. O. Fitzpatrick, to be a Medical Officer, 29th December, 1923.

Miss K. Thompson, to be a Nursing Sister, 9th March, 1923.

Mrs. Fichat, ditto (temporary), 7th August, 1923.

Mrs. Turnley, ditto, 15th August, 1923.

Miss A. Muncaster, ditto, 26th September, 1923.

Mr. W. H. Jones, to be Sanitary Superintendent, 9th March, 1923.

Mr. W. M. Mackay, ditto, 7th September, 1923.

Mr. J. W. Comfort, to be Sub-Assistant Surgeon, 11th July, 1923.

Mr. B. K. Christian, ditto, 8th August, 1923.

Mr. M. P. Dave, ditto, 22nd August, 1923.

Mr. A. K. Pathrekar, ditto, 16th May, 1923.

Mr. W. J. Paul, ditto, 5th September, 1923.

Mr. Chunilal Khanna, ditto, 14th September, 1923.

Mr. T. M. Joseph, ditto, 25th September, 1923.

Mr. J. F. Freeman, ditto, 17th October, 1923.

Mr. W. A. Irvine, ditto, 17th October, 1923.

Mr. R. G. Pradham, ditto, 31st October, 1923.  
 Mr. S. R. Abhyankar, ditto, 31st October, 1923.  
 Mr. C. K. Desai, ditto, 31st October, 1923.  
 Mr. G. G. Bam, ditto, 31st October, 1923.  
 Mr. P. V. Gokhale, ditto, 12th December, 1923.  
 Mr. Verumal Lakhmal, to be Compounder, 24th January, 1923.  
 Mr. Amarnath Varma, ditto, 8th February, 1923.  
 Mr. A. Correa, ditto, 5th September, 1923.  
 Mr. S. Mohamed, ditto, 5th September, 1923.  
 Mr. Jurdit Singh, ditto, 13th September, 1923.  
 Mr. R. D. Pandya, to be Clerk, 1st November, 1923.

*Promotions :—*

Nil.

*Retirement :—*

Dr. W. Owen Prichard, Senior Medical Officer, 16th September, 1923.

*Transfer :—*

Dr. D. S. Scott, Medical Officer, transferred to the service of Zanzibar, 3rd July, 1923.

*Agreements expired :—*

Dr. J. A. H. Van Derwert, 18th June, 1923.  
 Mr. F. A. Gemmell (Temporary Sanitary Superintendent), 31st October, 1923.  
 S. A. S. Abdulla Khan, 14th October, 1923.  
 Compounder Daya Ram, 19th January, 1923.  
 „ Haji Khan, 14th October, 1923.  
 „ Bhagat Ram, 20th August, 1923.  
 „ Kushal Khan, 14th October, 1923.

*Agreements terminated :—*

S.A.S. B. P. Trivedi, on 9th June, 1923.  
 „ W. J. Paul, on 27th September, 1923.  
 „ J. W. Comfort, on 31st August, 1923.  
 Compounder Aziz Ahmed, on 19th May, 1923.  
 „ Haweli Ram, on 27th December, 1923.

*Resignations :—*

Miss N. E. Wells, Nursing Sister, 11th February, 1924.  
 Miss Z. E. Angus, ditto, 5th September, 1923.  
 S.A.S. J. N. Sen Gupta, 25th April, 1923.  
 „ R. Baxter, 1st July, 1923.

*Deaths :—*

S.A.S. G. V. Oak, 21st March, 1923.  
 „ P. K. Chakko, 19th July, 1923.  
 Compounder Bhagat Singh, 5th May, 1923.  
 Native Dispenser Austen Petro, one of the earliest employees in the Medical Department of the Civil Administration, died at Songea 10th December, 1923.

*Invalided to England (or to India).*

Dr. A. McA. Blackwood, 17th February, 1923, returned to duty after leave.  
 Compounder Mazumdar, 24th August, 1923.

## LEAVE OF ABSENCE.

Name.	Appointment.	On Leave.	
		From.	To.
Dr. J. O. Shircore .. .. .	Dy. P.M.O. .. .. .	Throughout the year.	
Dr. W. O. Prichard .. .. .	S.M.O. .. .. .	5/3/23 to 15/9/23.	
Dr. J. McK. Clark .. .. .	M.O. .. .. .	21/6/23 till end of the year.	
Dr. C. R. Wallace .. .. .	" .. .. .	Beginning of the year till 24/5/23.	
Dr. G. R. C. Wilson .. .. .	" .. .. .	Beginning of the year till 2/4/23.	
Dr. C. B. B. Reid .. .. .	" .. .. .	2/3/23 till the end of the year.	
Dr. R. R. Scott .. .. .	" .. .. .	Beginning of the year till 17/5/23.	
Dr. J. H. Parry .. .. .	" .. .. .	28/2/23 till the end of the year.	
Dr. A. McA. Blackwood .. .. .	" .. .. .	22/2/23 to 18/10/23.	
Dr. J. A. H. Van Derwert .. .. .	" .. .. .	5/2/23 to 18/6/23.	
Dr. J. G. McNaughton .. .. .	" (temp.) .. .. .	Beginning of the year till 29/1/23.	
Dr. C. H. Philips .. .. .	" .. .. .	2/5/23 till the end of the year.	
Dr. G. Maclean .. .. .	" .. .. .	28/11/23 " "	
Dr. R. Nixon .. .. .	" .. .. .	1/12/23 " "	
Mr. H. M. Fisher .. .. .	Dental Surgeon .. .. .	21/6/23 " "	
Miss F. M. Plant .. .. .	Sen. N. Sister .. .. .	5/5/23 " "	
Miss E. L. Kemsley .. .. .	Nursing Sister .. .. .	11/8/23 " "	
Miss M. Donald .. .. .	" " .. .. .	Beginning of the year till 29/1/23.	
Miss E. Shearing .. .. .	" " .. .. .	23/12/23 till the end of the year.	
Miss N. E. Wells .. .. .	" " .. .. .	15/11/23 " "	
Mr. C. D. Dovey .. .. .	Med. Storekeeper .. .. .	21/2/23 to 5/11/23.	
Mr. H. Hammond .. .. .	Lab. Assistant .. .. .	15/11/23 till the end of the year.	
Mr. C. N. Rowe .. .. .	San. Supdt. .. .. .	15/11/23 " "	
Mr. T. Bell .. .. .	" .. .. .	19/6/23 " "	
Mr. J. S. Humphrey .. .. .	" .. .. .	15/11/23 " "	
J. C. Lemos .. .. .	Sub-Asst. Surgeon .. .. .	19/7/23 to 30/11/23.	
Diwan Chand .. .. .	" " .. .. .	29/12/23 till the end of the year.	
Abdulla Khan .. .. .	" " .. .. .	3/7/23 to 14/10/23.	
J. C. N. Sen Gupta .. .. .	" " .. .. .	14/3/23 to 24/4/23.	
Ujagar Singh .. .. .	Compounder .. .. .	23/10/23 till the end of the year.	
Haji Khan .. .. .	" .. .. .	3/7/23 to 14/10/23.	
Bhagat Ram .. .. .	" .. .. .	18/5/23 to 20/8/23.	
Kushal Khan .. .. .	" .. .. .	3/7/23 to 14/10/23.	
M. M. Dass .. .. .	" .. .. .	Beginning of the year till 5/2/23.	
P. V. Mathew .. .. .	" .. .. .	14/12/23 till end of the year.	
Hadad Khan .. .. .	" .. .. .	24/5/23 to 13/11/23.	
L. M. Dass .. .. .	" .. .. .	Beginning of the year till 17/5/23.	
A. L. B. Fernandes .. .. .	Clerk .. .. .	1/12/23 till end of the year.	
D. A. S. Nanayakkara .. .. .	" .. .. .	Beginning of the year till 31/5/23.	

## DISPOSITION OF THE EUROPEAN STAFF AND OF SUB-ASSISTANT SURGEONS.

Name and Qualification.	Rank.	Station Dec. 31, 1923.	Remarks.
J. B. Davey, M.B. (Lond.), M.R.C.S. (Eng.), L.R.C.P. (Lond.), D.T.M. (Liverpool).	P.M.O. ..	Dar-es-Salaam.	
J. O. Shircore, M.B., Ch.B. (Edin.) L.R.C.P., L.R.C.S. and L.R.F.P.S. (Edin. and Glas.), M.R.C.P. (Edin.).	Dy. P.M.O. ..	On leave.	
A. H. Owen, B.A. (Camb.), M.R.C.S. (Eng.), L.R.C.P. (Lond.), D.T.M. and H. (Camb.).	S.S.O. ..	Dar-es-Salaam.	
G. G. Butler, M.B.E., M.R.C.S. (Eng.), L.R.C.P. (Lond.), M.D., B.Ch. (Cantab.).	Dir. of Lab. ..	Dar-es-Salaam	Acting as Dy. P.M.O. .
T. H. Suffern, M.B., B.A.O., Ch.B., (Roy. University, Ireland).	S.M.O. ..	Tanga.	
C. L. Ievers, L.R.C.S., L.R.C.P. (Edin.), D.T.M. (Liverp.).	S.M.O. ..	Dar-es-Salaam.	
P. N. Nunan, B.A., M.D., M.B., B.Ch. (Dublin).	S.M.O. ..	On leave.	
J. H. Thomson, M.B., Ch.B. (Aberd.)..	M.O. .. ..	Mwanza.	
J. McK. Clark, M.B., B.Ch., D.T.M. (Liverp.).	" .. ..	On leave.	
C. R. H. Tichborne, L.A.H. (Dub.) ..	" .. ..	Nahenge.	
C. R. Wallace, L.R.C.P., L.R.C.S., L.M. (Ireland).	" .. ..	Kigoma.	
G. R. C. Wilson, M.R.C.S. (Eng.), L.R.C.P. (Lond.).	" .. ..	Tukuyu.	
C. B. B. Reid, M.B., Ch.B. (Edin.), D.T.M. (Liverp.).	" .. ..	On leave.	
R. R. Scott, M.C., M.B., B.S. (Durham), M.R.C.S. (Eng.), L.R.C.P., D.P.H. (Lond.).	" .. ..	Dar-es-Salaam	Acting as M.O.H.
J. H. Parry, B.A. (Cant.), M.R.C.S. (Eng.), L.R.C.P. (Lond.).	" .. ..	On leave.	
A. McA. Blackwood, M.B., Ch.B. (Glas.).	" .. ..	Lindi.	
W. E. Haworth, M.B., C.M. (Edin.), B.Sc. (Edin.).	" (temp.)	Dar-es-Salaam	Acting as Dir. of Lab.
J. G. McNaughton, M.D., M.R.C.P., M.B.C.M. (Edin.).	" "	Tabora ..	Acting as S.M.O.
C. H. Philips, L.M.S.S.A. (Lond.) ..	" .. ..	On leave.	
G. A. Williams, L.R.C.P. (Lond.), M.R.C.S. (Eng.).	" (temp.)	Bukoba.	
G. Maclean, M.B., Ch.B. (Glas.) ..	" .. ..	On leave.	
C. F. Shelton, M.D., L.R.C.P. (Lond.), M.R.C.S. (Eng.).	" .. ..	Arusha.	
R. Nixon, M.B., Ch.B., D.T.M., D.P.H. (Liverp.).	" .. ..	On leave.	
J. M. Semple, B.Ch., M.B. (Dub.), B.A.O. and L.M. (Rot.).	" .. ..	Dar-es-Salaam.	
A. I. Meek, L.R.C.P., L.R.C.S., D.P.H. (Edin.), L.R.F.P. and S. (Glas.). ..	" .. ..	Tanga. ..	Acting as M.O.H.
J. J. B. Edmond, M.C., M.B., Ch.B. (Edin.), D.T.M. and H. (Lond.).	" .. ..	Moshi.	
O. Fitzpatrick, M.B., Ch.B. (Edin.), L.R.C.P., L.R.C.S. (Edin.), L.R.F.P.S. (Glas.).	" .. ..	Not yet arrived.	
A. R. Lester, M.B., B.S. (Bombay), F.R.F.P. and S. (Glas.), D.P.H. (Edin.), D.T.M. and H. (Edin.).	" .. ..	" "	
H. M. Fisher, L.D.S., R.C.S. (Eng.) ..	Dental Surgeon	On leave.	
Miss F. M. Plant .. ..	Sen. N. Sister..	"	
Miss E. L. Kemsley .. ..	Nursing Sister	"	
Mrs. M. A. Cartlidge .. ..	" "	Moshi	
Miss J. Fraser .. ..	" "	Tanga.	Acting as S.N.S.
Miss S. Riordan .. ..	" "	Tanga.	
Miss M. E. Shearing .. ..	" "	On leave.	
Miss W. R. Grant .. ..	" "	"	

DISPOSITION OF THE EUROPEAN STAFF AND OF SUB-ASSISTANT SURGEONS.—*continued.*

Name and Qualification.	Rank.	Station Dec. 31, 1923.	Remarks.
Miss E. Bishop .. .. .	Nursing Sister	Dar-es-Salaam.	Acting as S.N.S.
Miss N. E. Wells .. .. .	" "	On leave.	
Miss B. G. Allardes .. .. .	" "	Dar-es-Salaam.	
Miss H. M. Sanders .. .. .	" "	Tabora.	
Miss M. B. H. Macrae .. .. .	" "	Dar-es-Salaam.	
Miss M. Donald .. .. .	" "	Tabora.	
Miss K. Thompson .. .. .	" "	Dar-es-Salaam.	
Miss A. Muncaster .. .. .	" "	Tanga.	
Mrs. C. M. Fichat .. .. .	" "	Dar-es-Salaam.	
	(temp.)		
Mrs. N. K. Turnley .. .. .	" "	Arusha	
Miss J. E. Wootten .. .. .	" "	Not yet arrived.	
Mr. C. D. Dovey .. .. .	Med. Storekeeper	Dar-es-Salaam.	
Mr. H. W. Hassard .. .. .	Asst. "	"	
Mr. H. Hammond .. .. .	Lab. Assistant	On leave.	
Mr. J. L. Mason .. .. .	Clerk .. .. .	Dar-es-Salaam.	
Mr. C. N. Rowe .. .. .	San. Supt.	On leave.	
	(1st grade)		
Mr. W. A. Moore .. .. .	" "	Dar-es-Salaam.	
Mr. R. E. Owen .. .. .	San. Supt.	Tabora.	
	(2nd grade)		
Mr. T. Bell .. .. .	" "	On leave	
Mr. J. S. Humphrey .. .. .	" "	"	
Mr. W. H. Jones .. .. .	" "	Tanga.	
Mr. W. M. Mackay .. .. .	" "	Dar-es-Salaam.	
Mr. J. Spittles .. .. .	Supt., Lun.	Lutindi.	
	Asylum.		
Mrs. C. M. Spittles .. .. .	Matron, Lun.	Lutindi.	
	Asylum		
Mr. N. M. Moore .. .. .	Clerk	Not yet arrived.	
	Storekeeper.		
B. G. Pandit, L.C.P. and S. (Bombay) ..	Sub-Asst.	On transfer.	
	Surgeon.		
D. G. Kelkar, L.C.P. and S. (Bombay) ..	" "	A.B.B.	
		Commission.	
J. C. Lemos, F.C.P.S. (Calcutta) ..	" "	Iringa.	
Diwan Chand, Certified Lahore Medical School.	" "	On leave.	
S. V. Pantwaidya, Pyramjeejeebhoy Medical School (Poona).	" "	"	
D. A. Purandre, L.C.P. and S. (Bombay)	" "	Bukoba.	
Y. L. Moole, L.C.P. and S. (Bombay) ..	" "	Mikindani.	
C. K. Borsada, L.C.P. and S. (Bombay)	" "	Morogoro.	
M. S. Desai, L.C.P. & S. (Calcutta) ..	" "	Bagamoyo.	
P. S. Paranjpe, L.C.P. and S. (Bombay)	" "	Singida.	
J. F. Macedo, L.C.P. and S. (Bombay)	" "	Kilwa.	
M. C. Thomas, L.M.S. (Travancore) ..	" "	Mwanza	
Y. B. Kelshikar, L.C.P. and S. (Bombay)	" "	Tanga.	
G. V. Sakrikar, L.C.P. and S. (Bombay)	" "	Pangani	
K. R. Pagadala, L. C. P and S. (Bombay)	" "	Songea.	
B. K. Christian, L.C.P. and S. (Bombay)	" "	Ujiji.	
M. P. Dave, L.C.P. and S. (Bombay) ..	" "	Dar-es-Salaam.	
A. K. Pathreekar, Certificated Hyderabad, Deccan, Medical School.	" "	Musoma.	
Chunilal Khanna .. .. .	" "	Dodoma.	
T. M. Joseph, L.M.P. (Madras) .. ..	" "	Kondoa-Irangi.	
J. F. Freeman, L.C.P. and S. (Bombay)	" "	Tabora.	
W. A. Irvine, L.C.P. and S. (Bombay) ..	" "	Dar-es-Salaam.	
R. G. Pradham, L.M.F. (Bengal) .. ..	" "	Shinyanga.	
S. R. Abhyankar, L.C.P. and S. (Bombay)	" "	Dar-es-Salaam.	
C. K. Desai, L.C.P. and S. (Bombay) ..	" "	Bukoba.	
G. G. Bam, L.C.P. and S. (Bombay) ..	" "	Tanga.	
P. V. Gokhale, L.C.P. and S. (Bombay)	" "	On transfer.	
M. B. Pandya, L.C.P. and S. (Bombay)	" "	Not yet arrived.	
L. Coro (Malta University) .. .. .	" "	Namanyere.	

## II

### PROFICIENCY IN SWAHILI.

During 1923 one Medical Officer passed the higher standard examination in Swahili and one Medical Officer, one Nursing Sister, three Sanitary Superintendents, the Laboratory Assistant and one Sub-Assistant Surgeon the lower standard. One Medical Officer passed the written part only of the lower standard examination.

### (b)–FINANCIAL.

Estimated Expenditure for period 1st January to 31st December, 1923 :—

#### MEDICAL DIVISION.

	£
Principal Medical Officer and Deputy Principal Medical Officer ... ..	2,200
Clerical Staff, Medical Storekeepers, Packers, Messengers, etc. ... ..	3,056
Senior Medical Officers ... ..	2,341
Medical Officers ... ..	12,765
Dental Surgeon ... ..	769
	<hr/> £21,131

#### SANITATION DIVISION.

Senior Sanitation Officer, Medical Officers of Health and Subordinate Staff for the suppression of Epidemic Diseases ... ..	5,127
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#### LABORATORY DIVISION.

Director of Laboratory and Laboratory Assistant ... ..	1,281
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Total Personal Emoluments ...	<hr/> <hr/> £27,539
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#### *Other Charges :—*

ADMINISTRATIVE DIVISION	£
Incidental charges ... ..	135
MEDICAL DIVISION.	
General Miscellaneous ... ..	6,252
SANITATION DIVISION.	
Maintenance of Lepers, Lunatics and Incurables ... ..	3,607
Sanitary Labour and Upkeep of Infectious Diseases Hospital ... ..	11,232
Miscellaneous ... ..	757
LABORATORY DIVISION.	
Miscellaneous ... ..	448
	<hr/>
Total other charges ...	£22,431 <hr/> <hr/>

#### SPECIAL EXPENDITURE.

	£
Sanitary Equipment ... ..	882
Travelling Equipment ... ..	114
Medical Library ... ..	135
	<hr/>
	£1,131 <hr/> <hr/>

#### HOSPITALS AND DISPENSARIES.

<i>Personal Emoluments :—</i>	£
Nursing Staff ... ..	3,385
Superintendent and Matron, Lunatic Asylum ... ..	590
Indian Medical Assistants ... ..	9,263
Native Dispensers, Hospital Attendants and Dressers ... ..	3,365
	<hr/>
	£16,603 <hr/> <hr/>

*Other Charges :—*

								£
Medical and Surgical Stores	...	...	...	...	...	...	...	6,520
Medical Equipment and Furniture	...	...	...	...	...	...	...	625
Upkeep of Hospitals	...	...	...	...	...	...	...	9,500
								<hr/> £16,645 <hr/>

## STATEMENT OF REVENUE, 1923.

								£
From Hospital Fees and Sale of Drugs, etc.	...	...	...	...	...	...	...	3,546
Fees collected by Port and Marine Department for Bills of Health	...	...	...	...	...	...	...	505
Sale of Vaccine to Zanzibar Government	...	...	...	...	...	...	...	320
								<hr/> £4,371 <hr/>

## MEDICAL LIBRARY.

Thirty-two new books, including 2 volumes of Medical Journals bound by the Government Printer, have been added to the Library in the Principal Medical Officers's Office during 1923, and 4 have been issued permanently to stations. At the end of the year the library contained 141 books (157 volumes). Three new books (4 volumes) have been added to the library at the Laboratory which now contains 30 books in English, besides German works.

The principal scientific periodicals of Medical interest have been taken in as before and copies of the Tropical Diseases Bulletin and the Annals of Tropical Medicine and Parasitology distributed to a number of stations.

The two votes under which these purchases have hitherto been made were combined into one vote of £150 for "Library" in the Estimates for 1923-24.

## II. PUBLIC HEALTH.

## (i.)—GENERAL DISEASES.

*Diseases of the Blood and of Metabolism: Diet Deficiency Diseases.*—Anæmia in natives commonly connotes Ankylostomiasis or Schistosomiasis, but it is a constant feature of Trypanosomiasis also. On a tour of the Trypanosomiasis area in Mwanza, one was struck by the number of anæmic women; on enquiry, the condition seemed to be due to a recent parturition in nearly all cases. The case of hæmophilia was that of an Indian child, aged seven, who died after circumcision performed by a local barber. Cases diagnosed as Purpura are described at p. 294 by the Medical Officer, Bukoba. Some remarks by the Acting Senior Medical Officer, Tabora, on enlargement of the spleen in natives will be found at p. 180. Whether any of these cases correspond to those known elsewhere as Egyptian Splenomegaly is doubtful: Malaria, Schistosomiasis and intestinal parasites are probably the usual causes of splenic enlargement in this Territory.

A native case of Hodgkins Disease is reported by the Medical Officer, Moshi, but the patient passed from observation.

The cases of diabetes were Asiatic patients, no native case being reported. Simple goitre has a limited distribution, the cases coming chiefly from valleys in high level country, such as Rungwe District, where Dr. Wilson reports it to be by no means uncommon.

Although cases of both acromegaly and achondroplasia were well known to the writer in Nyasaland, no cases of these diseases or of infantilism and cretinism are reported. If the numerous cases of gout which Asiatic subordinates report have any existence in fact, it must be of the "poor man's" variety, but these diagnoses have been changed to "arthritis" for the purposes of the returns attached to this report. Arthritis is, indeed, common enough amongst natives, but in many cases its nature is obscure: pyorrhœa and other sources of septic infection are, of course, very common. Food deficiency diseases do not figure prominently in the returns, but are apt to be overlooked. Seventeen cases of scurvy, as compared with 31 in 1922, were reported in 1923, and 2 only of beri-beri (1 remaining from last year), as compared with 34 in 1922 and 1 in 1921. There was nothing in the nature

of widespread famine during 1923, though localised shortages occurred, as in most years. Many native cases of somewhat vague illness, with anæmia, asthenia or diarrhœa as, perhaps, the only obvious symptoms, come under notice and close investigation would doubtless assign many of these to Food Deficiency Disease. The majority of the 598 cases of "anæmia" and the 143 of "debility," which appear in the returns for 1923, are probably due to ankylostomiasis, schistosomiasis and malaria, but it may well be suspected that vitamine deficiency furnishes its quota. The 3 cases of scurvy treated at the Sewa Hadji Hospital, Dar-es-Salaam, were all Indians; two of the five at Tabora were prisoners and quickly responded, so the Acting Senior Medical Officer reports, to a daily ration of fresh lemons and green vegetables: one of the five cases at Morogoro, also, was a prisoner. An outbreak of diarrhœa resulting in the loss of some 20 lives occurred at Morogoro gaol and was attributed by the Director of Laboratory and the Senior Sanitation Officer, who investigated it, to vitamine deficiency. The 5 cases of rickets recorded were in Asiatic children. No case of Pellagra is reported in 1923: one was reported in 1922 at Mwanza gaol.

Gross organic lesions of the *Nervous System* are seldom reported in natives. The Senior Medical Officer, Tanga, records two typical cases of Paralysis Agitans in natives: the second was a middle-aged male and shewed tremor, rigidity, the mask like facies and the typical gait. No cases of Encephalitis lethargica have been observed in the Territory and the Paralysis Agitans cases at Tanga were probably genuine instances of Parkinsons Disease. The Medical Officer, Bukoba, Dr. G. A. Williams, reports at pp. 178-179 cases of suspected General Paralysis and he speaks from knowledge of asylum work in England. The same officer reported a case of hysterical aphasia of six months' duration following a fall from a tree: the patient was a healthy male native, aged about 23, and the power of speech was restored to him by chloroform anæsthesia. He has been seen several times since and shews no indication of a relapse. Unfortunately, as Dr. Williams somewhat quaintly remarks, he was unable to repeat his success in the case of the numerous dumb persons who made their way to the hospital when the news of this cure was noised abroad.

Epilepsy is common and frequently severe in natives: it is hoped that the success Dr. McNaughton has had in treating this disease with Bismuth Sodium Potassium Tartrate (*see* p. 176) at Tabora may be repeated elsewhere.

*Mental Diseases* are discussed by the Superintendent of the Asylum at p. 147. In addition to the cases at Lutindi, 35 lunatics were detained in various gaols on December 31st, 1923, including 3 who were taken over at Lukira by the Belgian authorities on rectification of the frontier at the new year. Plans for the new Central Asylum have been drawn up and the site selected at Morogoro, and it is hoped that it will not be necessary much longer to detain these cases in Prisons.

*Diseases of the Eye*, principally Conjunctivitis, are frequent amongst the native population: cases of blindness, due commonly to small-pox, cataract or injury, are fairly numerous. A case of hæmorrhage into the vitreous, probably of malarial origin, came under treatment: the patient was a European official and made a satisfactory recovery. Cataract is common and the successful operative treatment of this condition is so appreciated by the native that it would be well for all medical officers to be masters of it. The principal sultan of one district, who had long been blind from cataract, was particularly appreciative of the operation and the glasses provided.

*Diseases of the Ear* are also very numerous and discharging ear cases in native children are a troublesome problem in dispensary practice. Fortunately, however, the number of totally deaf does not appear to be large. Amongst the European population diseases of the *Respiratory* and *Circulatory Systems* figures less prominently than in the returns for Great Britain, but pneumonia causes a heavy mortality amongst natives, and bronchitis, not usually of severe degree, is very common. 306 cases, mostly natives, of lobar pneumonia were treated in hospital and of these, 59 proved fatal: complications and sequelæ seem to be uncommon, only 3 cases of empycema are reported under Respiratory Diseases, but 3 other cases are mentioned under "Injuries." Valvular disease of the heart is seldom reported in natives and it is perhaps noteworthy that, in a population in which syphilis is common, the late vascular sequelæ of this disease are so seldom observed. 2 cases of aneurysm of the subclavian artery were reported from Tabora: one was a native and the other an Arab

aged about 50 who denied syphilitic infection, but admitted to Yaws. Neither of these cases was submitted to operation. One well authenticated case of suppurative pericarditis died in Arusha Hospital, a native of the district: it was possibly a manifestation of a pyæmia.

In all classes diseases of the *Digestive* organs are very common. The suspicion that, of the numerous cases of stomatitis in natives, many are mild forms of scurvy can hardly be rejected. Hepatic Abscess is remarkably infrequent considering the prevalence of amoebic dysentery, and only 4 cases, none of which were in Europeans, were reported in 1923. Of these, one only was submitted to operation: the diagnosis in the others, all of which were reported by the Asiatic staff, is open to question. A full report on a case, a native of Uganda, who recovered after two operations, will be found at p. 182. Cirrhosis of the liver is occasionally reported in natives: at the post-mortem on a native, who died suddenly at Mwanza, hepatic cirrhosis was the only pathological condition noted. From gastric and duodenal ulcer the native appears to be exempt. Dental caries is far more common in natives than is usually believed. From Bukoba is reported a case of volvulus of the colon of some importance, for the fact of partaking of native beer, at the house of a friend, some four hours before the onset of symptoms, inevitably aroused a strong suspicion of poisoning in the native mind: a post-mortem examination disclosed the true cause of death. At Arusha, another case of acute obstruction, believed to be due to volvulus, died after a second operation to locate the lesion, a preliminary drainage of the gut having resulted in rapid wasting: the patient was a K.A.R. askari. At Arusha, too, a left iliac colotomy was not successful in relieving a case of stricture of the sigmoid colon in a European patient: the stricture was suspected to be post dysenteric. Acute intestinal obstruction also accounted for one of the four European deaths in the Hospital Dar-es-Salaam. No cases of sprue have been reported. Appendicitis appears to be infrequent in natives: one case of appendix abscess was reported in 1922 and this year an interesting case of abdominal abscess, probably appendicular, from which an *Ascaris Lumbricoides* was removed, came under treatment at Bukoba: it is reported in full at p. 179. One European Official died of acute perforative appendicitis and another was successfully operated upon at the Government Hospital Nairobi, after having an attack of appendicitis at Mwanza.

*Urinary System.*—Cases returned as nephritis or hæmaturia are probably due to Schistosomiasis in most instances, but calculus in natives is not unknown. Further remarks on this group will be found at pp. 21-22.

*Diseases of the Male Generative System* are referred to in other sections of this report, *see* pp. 21-22.

*Diseases of the Female Generative Organs.*—But few native cases of this group come under notice, although there can be no doubt that they are frequent. Those cases of delayed labour which seek admission to hospital have commonly been subjected to various manipulations at the hands of native handy women and are frequently septic. The cases which were subjected to Cæsarean Section and Porro's Operation (*see* Table of Operations, p. 146) were Indian women: the former had been delivered at a previous pregnancy by craniotomy.

*Diseases of Organs of Locomotion.*—Arthritis, as already mentioned, is common in natives. Rheumatic fever is not uncommonly diagnosed by the Asiatic staff, but in my own experience it is very rare in Tropical Africa, both in European and natives. Bone disease is frequent and, apart from the well-known dactylitis of Yaws, many cases of localised necrosis of long bones come under treatment: these are probably due to syphilis and Yaws in most cases; not infrequently a rapidly extending tropical sloughing ulcer extends down to and sets up necrosis in bone.

*Diseases of Connective Tissue.*—Abscess is extremely common and not a few cases of large deep-seated, sometimes multiple, chronic abscesses come under treatment. The ætiology of these large abscesses is often obscure, some, no doubt, are tubercular, possibly some are filarial. They appear to be more common at Arusha than elsewhere.

Diseases of the Skin are almost universal amongst natives. Scabies, frequently masked by severe impetigo, and various forms of tinea constituting the bulk of the cases seeking attention. A few cases of mycetoma are reported, but the causative fungus is not often recognised. Two cases of a curious serpiginous ulceration of long standing, affecting the face and neck, and closely resembling Lupus vulgaris, were seen by the writer in Mwanza Hospital while on tour. There was scarring in the centre and extension at the periphery:

ectropion had resulted in both cases. Antisymphilitic and other treatment had been tried without success. Ulcers have been included under Diseases of the Skin and are a great cause of disablement amongst natives. Some of these rapidly extending ulcers are almost malignant in their destructiveness: the Medical Officer Moshi (Dr. Edmond), reports one which had extended through the bones of the leg, and the foot was attached merely by the Tendo achillis: the amputation wound healed well, but a mass of glands in the groin broke down into a fungating hæmorrhagic ulcer extending deeply amongst the vessels. It was curetted with some benefit. At the same station a foot rendered gangrenous by severe ulceration, was amputated. See also "Mti Mgongwa," by J. G. McNaughton, p. 176.

*Injuries* of the most varied description and in large numbers add much to the volume of work at all stations. In some districts, e.g., Songea and Rufiji, injuries by wild beasts are reported to be very common: some of these cases are of a very severe nature and, owing to delay in reaching hospital, are in a highly septic condition when they come under treatment. Spear and knife wounds are common amongst most tribes: an interesting case is reported by the Medical Officer, Moshi (Dr. J. J. B. Edmond, M.C.), in which a spear was thrust through and through the left loin; a fæcal fistula, but no general peritonitis resulting. At Arusha, two spear wounds of the thorax, one involving the lung, were treated: both were complicated by empyœma and both recovered after operation which, in one case, included excision of part of a rib and suture of the lung. Another case of spear wound of the lung proved fatal. In many instances the nature of the injuries recorded in the returns is not specified: dislocations of hip are mentioned twice and of the shoulder three times: fracture of the femur twice.

A compound fracture dislocation of the ankle joint at Arusha was complicated by Gas Gangrene and terminated fatally.

*Tumours.*—The tumours met with in the native population are commonly fibromata and lipomata: their chief characteristic the enormous size they are usually permitted to attain before skilled attention is sought. Unfortunately, details of the tumours recorded are seldom supplied. A curious sausage-shaped tumour, described as a fibroma, was removed from the buttock of a native by Dr. J. H. Suffern. A native medicine man had vigorously cauterised this growth before the patient consulted Dr. Suffern. A fibrous tumour of the upper jaw was also removed by Dr. Suffern: its large size necessitated splitting of the cheek, but the continuity of the jaw was not interfered with and the result was very satisfactory. The diagnosis in several cases returned as carcinoma and sarcoma by the Asiatic staff has been considered doubtful and such cases appear as "Tumours Unclassified" in the returns: a definite case of carcinoma of the stomach in a native is reported by Dr. Shelton at p. 181. At Moshi a European Official died of carcinoma in the abdomen and the Medical Officer at that station (Dr. J. J. B. Edmond, M.C.) also reports two native cases of advanced carcinoma of the liver which were lost sight of and an interesting case, which he describes as an epithelioma of the arm, in an albino native. This man shewed multiple warty growths on the face, a larger pedunculated growth having been removed by Dr. Wilson some months before, but he returned with a very large ulcer of the arm of a malignant nature "like a rodent ulcer." Unfortunately, this patient absconded from hospital when another patient died under chloroform and was lost sight of.

An epithelioma of the penis is reported from Mwanza, but details are lacking. At Tanga a middle-aged native died in hospital and it was found that the greater part of his liver had been "replaced by an enormous primary carcinoma."

*Congenital malformations* of a minor degree are common amongst natives of Eastern Africa, as Dr. H. S. Stannus has shewn. A case of congenital absence of the uterus and atresia of the vagina was reported from Arusha: on exploratory laparotomy Dr. Shelton found that the uterus was represented by a small fibrous nodule. The same officer reports in full at p. 177 a case of congenital defect of the male urethra in a native infant.

There is little of interest in the returns under "*Poisons*" except that two cases of Belladonna poisoning are mentioned. One of these was a European child who recovered after exhibiting typical symptoms.

Some 35 cases of snake bite are recorded.

*Animal Parasites.*—Helminths are dealt with on pp. 17-98.

Cutaneous myiasis is by no means uncommon in Europeans, and though native cases are not frequently seen they must, no doubt, often occur and are probably dealt with by friends as satisfactorily as are Chiggers.

Chiggers are widely distributed: the returns give little idea of their prevalence.

It is scarcely correct to mention Bats under this heading and they do not appear in the returns. Amongst the annoyances of life in the tropics they occupy no humble position. Having obtained access to the interior of the roof of a house they are capable of disturbing sleep by their squeaking and peregrinations and of creating a most unpleasant stench. All houses in the tropics should be constructed so as to deny access, between roof and ceiling, to these creatures. The Medical Officer, Mwanza, reports that 799 bats were killed on removal of part of the roof of his house. One trusts that their reputed partiality for mosquitoes has foundation in fact.

#### (ii.)—COMMUNICABLE DISEASES.

*Anthrax*.—There are reasons for believing that this disease occasionally occurs in limited outbreaks amongst cattle keeping tribes, such was probably the nature of a fatal outbreak of disease in the interior of the Musoma sub-district in October, though Plague has occurred in that district and may have been responsible. The Acting Chief Veterinary Officer informs me that the only outbreak in cattle recorded during 1923 was at Tingwini, Ntussu sultanate, Mwanza district, in July: Musoma is about 70 miles from Ntussu.

*Cerebrospinal Meningitis*.—103 cases with 91 deaths were reported in 1923 as against 12 cases each in 1922 and in 1921.

NOTE.—It will be observed that these figures do not agree with those shewn at p. 96 in the report of the Senior Sanitation Officer which is compiled from the weekly bulletins. It appears that the two cases at Kigoma were not reported by telegram or in the monthly sanitation reports and the Senior Sanitation Officer had departed on leave before the Annual Medical Report, 1923, for Kigoma, in which they are mentioned, had been received.

The disease has been prevalent since the first week of the year in Mwanza district, whence 90 of the 101 cases were reported. In June, several cases occurred in Nasa Sultanate on the shore of the lake and, subsequently, in Ntussu sultanate and Massansa Ndogo. In June, also, there was an epidemic of some fatal illness, believed to be Cerebrospinal Meningitis, in Usinga, to the west of the district. In Mwanza town there was a small outbreak and two of the four cases died: one European was infected, but recovered. In the adjoining district of Bukoba an epidemic, traced to infection brought by porters from Ruanda, caused six deaths before the Medical Officer reached the infected village (Ibwera)—30 miles from Bukoba town. He saw one case and verified the diagnosis by Lumbar puncture. The epidemic was energetically dealt with by the native authorities acting on the advice of the Medical Officer and was restricted to nine cases with six deaths. In 1922, no cases were reported from the lake area.

In Dar-es-Salaam only one case, a native official, was reported: the disease terminated fatally.

Arusha and Moshi districts have furnished most of the cases in previous years but, in 1923, one case only was reported from each of these districts. One was a native who died in Arusha Hospital: on lumbar puncture, semipurulent fluid, containing Gram-negative intra- and extra-cellular diplococci was withdrawn.

Kigoma township contributed two cases, an Indian and a native. They occurred in July and September and both ended fatally.

No cases have been reported south of the central railway during the past three years, but medical supervision in this part of the country is particularly inadequate.

*Cholera* has been recorded from East Africa in times past, but the Territory has been exempt from this disease since its administration came into British hands. The Sub-Assistant Surgeon, Kilwa, reported one case as cholera in 1923, but, on investigation, it was found to have almost certainly been food poisoning and is returned under this heading.

*Dengue*.—Nine cases reported in 1923, all from the European Hospital Dar-es-Salaam, as against none in 1922 and one in 1921. These cases were very typical examples of the disease and presented a well-marked rash: they all occurred in the course of a few weeks in the early part of the year and originated in neighbouring houses.

*Diphtheria*.—No cases in 1923 compared with 2 in 1922 and none in 1921.

*Dysentery* is reported upon by the Senior Sanitation Officer on p. 95.

*Encephalitis lethargica*.—No cases reported, as in the two preceding years.

*Enteric Fevers* occur sporadically in the Territory: 21 cases were reported during the year as compared with 18 in 1922 and 19 in 1921; probably many native cases are undiagnosed. Nine cases were admitted to the European Hospital, Dar-es-Salaam, 6 being Europeans and three Goans, all recovered: infection was acquired at Dar-es-Salaam in three instances (two being husband and wife), at Morogoro in three, at Dodoma in two and in India in one case. This last was by far the most severe infection. Eight of these were confirmed bacteriologically. From six of these cases information as to protective inoculation is available: three had never been inoculated, two had been inoculated against typhoid and para-typhoid in April, 1916, and March, 1917, respectively, during active service, and one had been inoculated "during the war." Three cases only were admitted to the Sewa Hadji Hospital, Dar-es-Salaam. One case, a European child, occurred at Arusha: although the report from the Laboratory Dar-es-Salaam on the serum reactions of this case was negative for typhoid and para-typhoid a, b and c, the Medical Officer is convinced that the clinical signs and symptoms admit of no other diagnosis. Two cases (natives) were treated at Mwanza Hospital.

*Seven-day Fever*.—Under this heading the Senior Medical Officer, European Hospital, Dar-es-Salaam, has placed a small outbreak of seven cases of a non-malarial fever which occurred in Dar-es-Salaam in December. He describes the characteristics of this fever as follows:—

1. Gradual onset (no rigor; but a feeling of malaise for about a day previous to the onset of Fever).
2. A continuous Fever, lasting for about seven days, running between 99 and 102.
3. A relatively slow pulse (perhaps 70 when the temperature might be 100).
4. Headache, general malaise, and general aches and pains.
5. A dirty-coated tongue which cleared at the edges towards the end of the attack.
6. A feeling of prostration for the first day or two after convalescence—quite distinct from that following an ordinary attack of Malaria.
7. A scarletiform rash which closely resembled Prickly Heat and which may have been this condition, as the weather at the time these cases occurred was extremely sultry.
8. The blood negative for parasites and blood culture in ox bile also negative.
9. Seven cases were observed in the month of December—the month in which the outbreak began.

Most of the cases were in European Officials.

*Glanders*.—No cases reported: there were none in 1922 or 1921.

*Helminthic Diseases*.—Schistosomiasis: a total of 171 were reported in 1923 as against 35 in 1922.

Fifty-seven cases were returned as *S. hæmatobium*, 2 as *S. mansoni* and 112 were not differentiated. Of the total, 114 were reported from Tanga: these, although not classified in the report, were principally of the urinary form and many of them were discovered by the Medical Officer of Health in routine examination of the school children (*see* p. 75). The Senior Medical Officer, Tanga, reports that natives are beginning to realize that the disease can be effectually treated and, in consequence, are attending in larger numbers.

It is probable that the disease is widespread in the Territory although the only other stations from which cases were reported were Dar-es-Salaam, Dodoma, Morogoro, Mwanza, Namanyere, Singidda, Tabora and Takuyu.

*Toenia* is a very common parasite amongst the native population due, in the large majority of cases, to the consumption of measly beef: pork is seldom partaken of. 1,013 cases were reported in 1923 as against 691 in 1922 and 692 in 1921. More than half the cases are returned by the Medical Officer, Moshi. The S.M.O., European Hospital, Dar-es-Salaam, reports a case in a European child aged 2 years and 4 months: this child had been fed on raw meat juice.

*Ankylostomiasis* is reported upon at p. 98 by the Senior Sanitation Officer.

Filariasis is widely distributed: the operation for removal of large Elephantoid tumours is becoming increasingly popular amongst natives and, as will be seen on reference to the table of Surgical Operations, p. 146, 81 cases were operated upon with two deaths. Many of these tumours are of huge dimensions.

Ascariasis is very prevalent: 1,787 cases were reported in 1923, 3,255 in 1922. Half of the cases were reported by the Medical Officer, Moshi, and 682 from Arusha. The M.O. Moshi remarks that this condition is almost universal in his district and that coma and convulsions, which usually quickly respond to treatment by santonin, are not infrequent in the victims. Two young adults died comatose: post-mortem " bunches of round worms were found in the stomach and small gut " in one and " large numbers " of ascaris in the other. An interesting case of inguinal abscess from which an ascaris was removed by Dr. Williams, Medical Officer, Bukoba, is recorded at p. 179.

Dracunculus: no case of Guinea worm has been recorded during the past three years.

Tricocephalus dispar is common and only occasionally reported: one such case, a Goan, was reported by the S.M.O., European Hospital, Dar-es-Salaam.

Influenza is dealt with in the report of the Senior Sanitation Officer, p. 92.

Leishmaniasis does not exist, so far as is known, in the Territory, but the occurrence of undoubted cases of Kala-Azar in Kenya demands watchfulness on the Tanganyika side of the border. " Oriental sore " is not uncommonly returned by the Asiatic subordinate staff, but no authenticated case is known and such sores appear under the heading " Ulcers " in this report.

Leprosy is dealt with by the Senior Sanitation Officer at pp. 98-99.

Malaria and Blackwater Fever are reported upon by the Senior Sanitation Officer on pp. 87-89. No cases of Blackwater Fever in natives have been recorded this year. How far Malaria contributes to the death rate of native children is uncertain: definite knowledge on this subject would be of the greatest interest. The M. O. Tukuyu reports the deaths, within twenty-four hours of admission to hospital, of two native children: they came from the highlands of the Livingstone mountains and were admitted in an unconscious condition. The only sign discovered was a massive blood infection with ring form malarial parasites. In both cases intravenous injection of quinine was without avail. The M.O. Arusha reports a similar case, a native child aged 6, admitted to hospital in a moribund condition, due, apparently, to a sub-tertian infection. For each such case that reaches hospital there must be many deaths in native villages. Nor does the adult native escape. The native ranks of the Kings African Rifles in Dar-es-Salaam suffer much from malaria in the malarial season of the year. As in the case of tick fever, it is probable that removal from his natural environment has much to do with morbidity from malaria in the native: the degree of tolerance he has acquired may not suffice to withstand mass infection under changed conditions of life and strenuous training. The laxity of the European and Asiatic population with regard to quinine prophylaxis has been mentioned elsewhere: the frequency with which, on the medical certificate for officers proceeding on leave, one reads entries, such as " takes quinine irregularly " or " takes quinine when he feels off colour " is further evidence of this laxity. Mosquito boots, too, are not worn as generally as they should be: the inventor of an elegant boot to protect ladies in evening dress must surely have a fortune awaiting him: it must be admitted that the ordinary type of mosquito boot does not shew to advantage with a smart evening frock.

Malta Fever.—One case (native) was reported from Arusha at the end of last year: he made a good recovery. No new cases are reported for 1923. The Acting Chief Veterinary Officer informs me that contagious abortion of cattle undoubtedly occurs in the Territory, but he has no very definite information as to its distribution: it is believed to occur in Arusha district, but abortions amongst cattle also occur in Rinderpest and East Coast fever infections which have been prevalent.

Mumps, of which 54 cases were reported in 1922 and 41 in 1921, has been very prevalent, 92 cases being reported: 35 of these occurred at Mikindani.

Measles.—17 cases in 1923 as compared with 62 in 1922 and 267 in 1921.

Plague is discussed on pp. 93-94 by the Senior Sanitation Officer.

*Rabies*.—No cases reported in 1923 as in the two preceding years.

*Relapsing (Tick) Fever*.—119 cases were reported in 1923 as against 44 in 1922 and 29 in 1921. *Ornithodoros moubata* is widely distributed in the Territory and, during the war, established itself in several European residences. The danger of acquiring infection from bites of the tick appears, however, to vary greatly in different districts. Thus the Medical Officer, Bukoba, reports that the tick is common and Europeans are not infrequently bitten in that district, but they do not acquire Relapsing Fever: no cases are reported from Bukoba district. In the adjoining district of Mwanza, 4 European cases occurred and 9 native cases were treated; the blood of one of these, a child, was described as "swarming with spirilla." The Kilosa—Iringa and Mwanza—Tabora roads are fruitful sources of infection, especially the former: 44 cases were treated at Iringa almost all of which acquired infection on the road.

Two cases in the European Hospital, Dar-es-Salaam, were of considerable interest: one was a Goanese patient admitted with bilateral facial paralysis. An attack of pyrexia led to a blood examination which revealed a spirillum infection. Appropriate treatment with neokharsivan cured the spirillum infection and the facial paralysis. As far as could be ascertained, infection had been acquired in Dar-es-Salaam. The second case was that of a European lady infected while on a visit to Tabora: she relapsed after four injections of Neokharsivan and exhibited meningitic symptoms of such severity that lumbar puncture was twice performed, with considerable amelioration of symptoms. At Tanga the Senior Medical Officer (Dr. T. H. Suffern) reported a European case, infected between Tanga and Handeni, which relapsed after two intravenous injections of neokharsivan g. o.75. It was a severe case with jaundice and three relapses occurred. At the Sewa Hadji Hospital, 30 cases were treated, five of whom were K. A. R. Askari.

The difficulty of eradicating the tick once it has obtained a footing in a building of any kind is very great. Gaols are particularly liable to become infested.

*Small-Pox* and Vaccination are considered by the Senior Sanitation Officer, *see* pp. 95-96.

*Tetanus*.—Five cases reported as against 9 in 1922 and 3 in 1921. In one case, at Tanga, the disease followed Cæsarean Section, but the patient fortunately recovered.

*Human Trypanosomiasis* is dealt with by the Senior Sanitation Officer on pp. 89-92.

There can be little doubt but that cases occur in parts of the Territory other than Mwanza district and it is intended to investigate this question as soon as staff is available. Tsetse fly investigations are in the hands of the Game Warden who is gradually demarcating the infected districts—no small task in a country of 365,000 square miles, some two-thirds of which are believed to be fly infested. To the writer it appears that the only practical solution of the tsetse fly problem lies in cultivation of the land and a general raising of the natives standard of living, including sanitation in its broadest meaning. Something also, no doubt, can be done by controlling native settlement, as proposed by the Game Warden. Increase of cultivation demands increase of population and help from the Agricultural Department: the latter is available and is already bearing fruit. But what is needed is people: many of our eleven inhabitants per square mile, low as that figure is, live in large townships. Most of the remainder live under most primitive conditions and are engaged in a fierce struggle for existence: their fight against wild nature is a very real one: their own lives and those of their children are in constant danger from epidemic disease and famine, their crops from destruction by game and their domestic animals from pestilence and carnivora. Under such conditions increase of population must be slow. Campaigns against the diseases which dominate the native and kill off his children in infancy await augmentation of the medical staff: in these campaigns the trained native is destined to play an important part. Tsetse fly is as much an evidence of backward civilisation and conditions of life as is the practice of witchcraft or the occurrence of typhus fever: cultivation and civilisation are its certain and deadly enemies. When the importance of the preservation of native lives, adult and infant, is realised, we may hope to witness the gradual disappearance of tsetse fly and many other scourges and must see to it that their place be not taken by other pestilences of alien origin.

*Tuberculosis*.—271 cases and 50 deaths were reported in 1923 as against 206 cases and 23 deaths in 1922 and 202 cases with 34 deaths in 1921. By Government Notice No. 132, published in the Gazette of 22nd June, 1923, Tuberculosis was declared a notifiable disease.

Asiatics contribute a considerable proportion of the cases, but native cases are reported from all parts of the Territory. At Dar-es-Salaam 4 European cases came under treatment—two being officials, who were invalided: at the Sewa Hadji Hospital 29 cases of Pulmonary infection were admitted; of these, 9 died and 3 were invalided; 16 cases were treated as out-patients. The Senior Medical Officer reports that Pulmonary Tuberculosis is common at Tanga and “a large number of bad cases of Ankylostomiasis become infected.” He treated one European and 44 Asiatic and Native cases: of the latter 36 were lung infections. At Arusha, natives of the district have been admitted to the hospital suffering from various manifestations of the disease—10 cases of tubercular glands in the neck, of whom 2 submitted to operation; 1 of tubercular meningitis, verified post-mortem; 1 of general miliary tuberculosis in which the peritoneum and lungs were found to be infected; 2 of pulmonary tuberculosis, of whom 1 died. Seven of the gland infections were in Wameru natives who inhabit the southern slope of Mount Mweru. Tuberculosis accounted for 3 of the 21 deaths in the Arusha Hospital in 1923. Two Europeans suffering from pulmonary tuberculosis also came under treatment at Arusha.

In the adjoining district of Moshi, too, the Medical Officer reports that all varieties of tuberculosis are met with in natives and he has had under treatment cases of tubercular meningitis, spinal disease, hip disease and “cold abscess.” The Acting Senior Medical Officer, Tabora, reports 19 cases of Pulmonary Tuberculosis (tubercle bacilli were found in the sputum of fourteen of these), 4 cases of old spinal caries and 6 cases of other forms of Tuberculosis.

At Morogoro 6 native cases of Pulmonary Tuberculosis were admitted to hospital, of these, 5, including 4 convicts, died. A native case of tubercular ulceration of the intestines also died in hospital.

The Medical Officer, Tukuyu, states that, in Rungwe district, the cases in natives usually owe infection to visits to Nyasaland or other parts of this Territory.

At Mikindani, all six cases were labourers from Songea district. Cases were also reported from Singidha, Dodoma, Kondoa-Itangi, Bagamoyo, Kilwa, Bukoba, Mwanza, Kigoma and Iringa.

There are no special institutions or facilities for the treatment of Tuberculous patients, native or other, and it is considered that the state of development of the country does not warrant expenditure in providing them: the outlook for the native infected with Tuberculosis cannot, however, be a bright one. Should it become possible to tackle the leprosy problem seriously, hostels for tubercular natives might be erected in the vicinity of those leper hospitals which are in suitable climates and be under the same management. Our native hospitals are not satisfactory refuges for these cases and the accommodation is required for other cases.

European and Asiatic cases are usually invalided from the Territory.

The Acting Chief Veterinary Officer informs me that tuberculosis of native cattle is of extreme rarity: one such case has, however, been reported from Bukoba district. The number of cattle carcasses inspected annually by the Veterinary Department at abattoirs must be a very large one, so that the rarity of bovine tuberculosis may be accepted without hesitation (*see, however, remarks on Pulmonary Tuberculosis in Ruanda, by S. A. S. Kelkar, at p. 152; I am unable to state the authority for S. A. S. Kelkar's opinion*).

*Typhus Fever*.—No case was reported in 1923: one case in 1922.

*Whooping Cough* has been prevalent: 41 cases were reported in 1923, 22 in 1922 and 20 in 1921.

*Yaws* is probably the most important cause of disability and ill-health amongst the natives of the Territory: in some districts it is described as being “practically universal.” In 1921, 1,109 cases, in 1922, 3,123, and in 1923, 3,593 cases of Yaws were treated at Government Hospitals and Dispensaries. Tukuyu and the Sewa Hadji Hospital, Dar-es-Salaam, head the list with 422 and 413 cases respectively. These figures, unfortunately, give little idea of the prevalence of the disease and, in parts of the country, a copious eruption of Yaws is so common as to be as little remarked by the natives as was a badly small-pox

pitted face in England in the eighteenth century. This stage of the disease causes no great inconvenience in the majority of cases but, apart from the clearly recognised later manifestations of the disease, one cannot doubt that a considerable number of the 12,500 cases of ulcer which attended our hospitals in 1923 owe their origin to Yaws. It is a disease pre-eminently amenable to treatment: the effect of an injection or two of neokharsivan, B.S.P.T. or tartar emetic is usually little short of magical, and the small cost of the two latter remedies brings an organised effort to reduce the scourge to reasonable dimensions within the range of practical politics. Kenya has taken up the matter vigorously.

The disease is discussed at some length on pp. 171-175.

Of Gangosa 11 cases were reported in 1923, not including 12 cases of ulcerative Rhino-Pharyngitis returned by S. A. S. Kelkar amongst natives of the district through which the Boundary Commission travelled and which were probably cases of Gangosa.

No cases of Juxta-articular subcutaneous nodules are reported; these cases do not apply for treatment as the condition causes little or no disability.

#### VENEREAL DISEASES.

(a) *Syphilis*.—716 cases of Primary, 1,638 of Secondary and 253 of Inherited syphilis were reported in 1923, as against 569 Primary, 1,481 Secondary and 74 Inherited in 1922 and 687 Primary, 1,723 Secondary and 39 Inherited in 1921. As in the case of Yaws, these figures give little indication of the extent of the disease. The results obtained by treatment with B.S.P.T. are recounted at pp. 171-175. As mentioned in previous reports, it is a disease of towns and of certain communities amongst which relaxation of old tribal customs has been followed by laxity of morals. The largest number of cases reported is that by the Medical Officer, Bukoba: a copy of his report is appended, pp. 22-23. Mwanza furnishes the second largest return: it is particularly prevalent in the Musoma sub-district and here a campaign has been started in the hope of rendering cases non-infective by neokharsivan and B.S.P.T. injections: the local Sultan has promised his support by urging cases to attend at the hospital. At Negeze, in Shinyanga sub-district of Tabora, a trained native dispenser from Nyasaland was posted at the end of the year to carry out treatment of Yaws and Syphilis with B.S.P.T.

(b) *Gonorrhœa*.—1,786 cases in 1923 as against 1,198 in 1922 and 1221 in 1921.

561 of these cases were reported from Bukoba, where numerous examples of the complications and sequelæ were also treated: of 91 cases of stricture of urethra, 35 were treated at Bukoba.

Orchitis and Epididymitis, however, seem to be less common in Bukoba than in some other districts, for only 12 cases were reported. At the Sewa Hadji Hospital, Dar-es-Salaam, and at Tanga, where 76 and 85 cases of these conditions were recorded, filariasis probably plays a part.

In Mwanza district the gonorrhœa is stated to be a mild infection: 111 cases were treated. No case of stricture of the urethra and only 10 of orchitis and epididymitis are recorded.

At Tabora the Acting Senior Medical Officer treated 129 cases of gonorrhœa: 78 cases were examined microscopically and the gonococcus found in 71 of them. The difficulty in persuading natives to attend for treatment after the subsidence of the acute symptoms is well-nigh unsurmountable: education in the advanced schools is necessary.

REPORT ON VENEREAL DISEASES BY G. A. WILLIAMS, B.A. (LOND.), M.R.C.S.  
(ENG.), L.R.C.P. (LOND.), MEDICAL OFFICER, BUKOBA DISTRICT.

VENEREAL DISEASES.

*Gonorrhœa*.—This I consider to be far the most serious disease we have to treat, as far as the individual is concerned. We have had an average of about 45 *new cases a month*, acute and chronic, and, in addition, large numbers of sufferers from the sequelæ, which are not included in this number. I now speak of the cases with a purulent discharge without the serious complications.

Of these cases, 20 per cent. only were women, which, of course, means that there must be lots of women who do not come. In the female we seldom see complications beyond some cervicitis and endometritis. Twice have we seen cystitis in the female and once only ovaritis and salpingitis. Unfortunately, the female seems to be very little inconvenienced and is consequently free and able to spread infection broadcast. In the male we have had almost all the complications and sequelæ, but, strangely enough, orchitis is not as common as at home.

Ophthalmia, arthritis, cystitis, periurethral abscess, fistula, stricture are common enough. Promiscuous sexual intercourse, incontinence while infected, prostitution, and pombe-drinking all tend to spread the disease.

There is much faith in the local remedy, which seems to consist of freely drinking a banana decoction, the consequent flushing of the system no doubt does exercise a beneficial effect.

Once the painful micturition stage is over, they usually give up all treatment and resume their old habits, with the result that stricture is a very frequent result.

During the year we have sent out a notice occasionally, pointing out the seriousness of the disease, and also of the sequelæ, with the result that stricture cases have come for treatment earlier than usual. Patients are now coming freely, having heard of the benefit of dilatation.

This year we have dilated strictures under chloroform, to the number of 36, some of them being of quite old standing, often multiple and accompanied by fistula. When able, we dilate without any anæsthetic, but these occasions are rather rare, except after repeated dilatations under an anæsthetic. We have had 7 cases in hospital of *Extravasation of Urine*, and 4 of them are still living and doing well. In 2 of these cases, the patients had to be brought to hospital by the orders of the local authorities, for the friends of the patients often wish to hide these cases, and the patient himself maintains silence, as, locally, there seems to be a certain amount of disgrace associated with the condition, the reason being, as far as I can make out, the consequent impotence. Of these 7 cases, one died almost on arrival in hospital. Of the other two who died, one died of toxæmia, following severe and long-standing cystitis, while the other died of pneumonia, which supervened, after he had done well for 16 days, after operation.

We have always incised very freely, and in every case we have been able to get a catheter through to the bladder, after dilatation, and, in some cases, we have tied a catheter in for a few days. In one case only did we have to perform a supra-pubic puncture.

*Syphilis*.—As against an attendance of 440 at Bukoba Hospital in 1922, in 1923 we had 640, apart from those treated while on tour, etc. We continue to have good results. We have given over 200 injections—intramuscular and intravenous—of neokharsivan (914), with very great benefit to the patients. We usually inject into the buttocks, and on two occasions only have we had anything like trouble, and in these cases it was confined to a certain amount of local inflammation and pain, lasting 5 or 6 days.

As our supply of 914 is limited, we have to confine the use of the drug to what we consider the most profitable cases, viz.: pregnant women, young married women, men of a working age, and, of course, all the prostitutes we can get hold of; of the rest, we have to choose those who shew the most distressing symptoms, *e.g.*, perforation of palate, huge sloughing ulcers, etc. So excellent have been the results of Neokharsivan, that the local native has come to regard it as a panacea for all the ills of the flesh.

I find that the name Syphilis (Kaswendi) used locally amongst the natives includes both Syphilis and Yaws, and I think that the estimated incidence of Syphilis at about 80 per cent. must be shared with Yaws, which accounts for, at a rough estimate, perhaps about 15 per

cent. of these cases. In some cases I think we have had double infection. Luckily, we have not to make a definite diagnosis, as 914 is equally efficacious for each disease.

*Confusion of Yaws with Syphilis.*—From repeated conversations with intelligent natives, I have gleaned several items of interest with regard to these diseases. Some of these natives knew of Buba (Yaws) as a separate disease from Kaswendi (Syphilis), and they said they learnt of it from the Germans.

I also learnt that the natives, some of them, distinguish between two kinds of Syphilis, which they call Kaswendi ndogo, and Kaswendi kubwa.

The former, the Lesser Syphilis, they recognise as:—

1. Hereditary

or 2. Connected with sexual intercourse, and they do not seem to know its general infectivity.

The latter, the Greater Syphilis:—

1. Not hereditary.

2. Not necessarily connected with sexual intercourse, *per se*, but very infectious generally, *i.e.*, it is dangerous for anyone with a cut or scratch to go near another infected person.

It seems to me that they have recognised differences between the two diseases, and have called Yaws the Greater Syphilis, on account, perhaps, of the very large scabs one sees.

I have been much struck with the intelligent appreciation and keen observation of some of these natives, in this respect, and I have learnt a good deal from them occasionally.

#### (b).—EUROPEAN OFFICIALS.

##### GENERAL REMARKS.

As will be observed from the accompanying tables, the deaths of European Officials numbered 6 in 1923 as in 1922: three of the six deaths were due to malaria and blackwater fever. Invalidings numbered 13, as against 12 in 1922, malaria and blackwater fever accounting for two only as compared with five in 1922. Under the heading of invalidings are not included those cases in which an official becomes due for leave in the course of or shortly after some serious illness and is allowed to proceed to England when convalescent; three cases in which officials, who would otherwise have been detained on duty after their leave became due, were allowed to proceed on leave on a medical certificate after a serious illness: these cases are mentioned at p. 24.

Exact statistics concerning the total and average number of officials in the Territory are not available in the Secretariat and, for the whole Territory, only an approximate figure can be given. It was suggested that registers of these details should be maintained by Administrative Officers and, at Headquarters, by the Secretariat. This proposal was not accepted and it was considered that the information concerned the Medical Department only. Instructions have been issued by Secretariat Circular to Administrative Officers and Heads of Departments to furnish the P.M.O. with a quarterly return containing the required information, commencing March 31st, 1924. This may obviate the difficulty which has hitherto been experienced.

It will be seen from the Tables at pp. 28-30 that there was a reduction, on the figures for 1922, in the morbidity amongst European Officials on account of malaria and blackwater fever as compared with the total morbidity, at the three largest stations: the reduction at Tabora was but trifling. As remarked in the Annual Medical Report for 1922, that year was a trying and unhealthy one. The tables show how large a part these preventable diseases play in both European and Asiatic sickness rates. It is to be feared that there is a good deal of slackness about personal prophylaxis. There is nothing of special importance to record in the year under review. Influenza, mostly of a very mild type, was prevalent in many parts of the country: no officials suffered from serious complications.

The deaths of European Officials were due to :—

	1921.	1922.	1923.
Cerebro-spinal Meningitis ... ..	0	1	0
Influenza ... ..	0	1	0
Malaria ... ..	1	1	1
Blackwater Fever ... ..	1	1	2
Pyrexia, uncertain origin ... ..	0	0	1
Aortic Disease. Angina Pectoris ... ..	0	1	0
Cardiac Failure ... ..	1	0	0
Appendicitis ... ..	0	0	1
Gastro-enteritis ... ..	0	1	0
Chronic Nephritis ... ..	1	0	0
Carcinoma ... ..	0	0	1
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	4	6	6
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#### INVALIDINGS.

Medical Boards were held on 18 European Officials: 15 were invalided out of the Territory, one of these (carcinoma) died before embarkation and is not included below. It is not yet possible to state how many of the remainder will return to the service. The causes of invaliding from the Territory in 1921, 1922 and 1923, were :—

	1921.	1922.	1923.
Enteric Fever ... ..	0	1	1
Dysentery (Amœbic) ... ..	0	0	2
Malaria ... ..	2	2	1
Blackwater Fever ... ..	1	3	1
Rheumatic Fever ... ..	1	0	0
Tuberculosis (pulmonary) ... ..	0	1	2
Double Inguinal Hernia ... ..	1	0	0
General Debility ... ..	2	3	1
Neurasthenia ... ..	1	0	4
Psychasthenia ... ..	0	1	0
Delusional Insanity ... ..	0	0	1
Endarteritis Obliterans ... ..	0	1	0
Exophthalmic goitre ... ..	0	0	1
Loss of Vision ... ..	0	1	0
Gunshot wound ... ..	1	0	0
	<hr/>	<hr/>	<hr/>
	9	13	14
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Three were granted local sick leave: the causes of sickness being :—

Blackwater Fever ... ..	1
Hæmorrhage into the Vitreous ... ..	1
Synovitis of Knee Joint ... ..	1

Three others who, although having completed a tour of service, would have been detained on duty for some further period, were allowed to proceed on home leave on medical certificate: they had suffered from :—

- (1) Blackwater Fever.
- (2) Enteric Fever.
- (3) Bacillary Dysentery and Tick Fever.

TABLE I.

EUROPEAN OFFICIALS.—TABLE SHOWING THE SICK, INVALIDING AND DEATH RATES, 1923, BY DISTRICTS.

	Arusha.	Bagamoyo.	Bukoba.	Dar-es-Salaam.	Dodoma.	Iringa.	Kigoma (Ujiji).	Kilwa.	Kondea-Irangi.	Lindi.	Lushoto (Usambara).
Total number of Officials Resident .. ..	35	8	19	349	47	12	32	6	9	16	6
Average number Resident .. ..	17.5	3.6	14	229	24.56	9	15.16	4	4.5	16	6
Total number on Sick List .. ..	7	1	4	280	87	1	18	5	1	10	3
Total number of days on Sick List .. ..	120	3	21	1,969	212	4	106	46	2	77	14
Average daily number on Sick List .. ..	0.33	0.008	0.06	5.39	0.58	0.011	0.29	0.126	0.005	0.21	0.038
Percentage of Sick to average number Resident	1.89	0.22	—	2.35	2.36	0.12	1.91	3.15	0.11	1.31	0.63
Average number of days on Sick List for each Patient.	17.14	3	5.25	7.03	2.44	4	5.89	9.2	0.2	7.7	4.66
Average Sick Time to each Resident .. ..	6.86	0.83	1.5	8.60	8.63	0.44	6.99	11.5	0.44	4.81	2.33
Total number Invalided .. ..	1	—	—	7	1	—	1	—	—	1	—
Percentage of Invalidings to total Residents ..	2.86	—	—	2.01	2.13	—	3.12	—	—	6.25	—
Total Deaths .. ..	—	—	—	1	2	—	1	—	—	—	—
Percentage of Deaths to total Residents ..	—	—	—	0.29	4.26	—	3.12	—	—	—	—
Percentage of Deaths to average number Resident	—	—	—	0.44	8.14	—	6.59	—	—	—	—
Number of cases of Sickness contracted away from Residence.	4	—	—	—	—	1	2	—	—	1	—

TABLE I.—continued.

EUROPEAN OFFICIALS.—TABLE SHOWING THE SICK, INVALIDING AND DEATH RATES, 1923, BY DISTRICTS.—continued.

	Morogoro.	Moshi.	Mwanza.	Namanyere (Ukupa).	Pangani.	Songea.	Tabora.	Tanga.	Tukuyu (Kungwe).	Utete (Rufiji).	Whole Territory.
Total number of Officials Resident .. ..	44	28	26	4	6	20	78	138	11	13	800 F
Average number Resident .. ..	25	18	23	3.6	4	9.7	47	51.14	9	7	600 F
Total number on Sick List .. ..	20	7	17	9	2	2	32	44	20	4	543
Total number of days on Sick List .. ..	102	60	179	26	4	25	265	221	69	10	3,535 G
Average daily number on Sick List .. ..	0.28	0.16	0.40	0.07	0.01	0.07	0.72	0.605	0.19	0.02	9.68 G
Percentage of Sick to average number Resident	1.12	0.89	2.13	1.94	0.25	0.72	1.53	1.18	2.11	0.28	1.61
Average number of days on Sick List for each Patient.	5.1	8.57	10.53	2.88	2	12.5	8.28	5.02	3.45	2.5	6.51
Average Sick Time to each Resident .. ..	4.08	3.33	7.78	7.22	1	2.57	5.64	4.32	7.66	1.44	5.89
Total number Invalided .. ..	1	—	—	—	—	—	—	1	—	1	14
Percentage of Invalidings to total Residents ..	2.27	—	—	—	—	—	—	0.72	—	7.69	1.75
Total Deaths .. ..	—	1	—	—	—	—	1	—	—	—	6
Percentage of Deaths to total Residents ..	—	3.57	—	—	—	—	1.28	—	—	—	0.75
Percentage of Deaths to average number Resident	—	5.55	—	—	—	—	2.13	—	—	—	1.00
Number of cases of Sickness contracted away from Residence.	1	4	—	—	—	—	3	—	—	—	16

F.—Approximately ; accurate figures not available.

G.—From 21 Stations shewn on this and page 25.

NOTE.—Returns from Mahenge not available for 1923.

TABLE II.

## SICK, INVALIDING AND DEATH RATES, EUROPEAN OFFICIALS, 1921, 1922 AND 1923.

	Dar-es-Salaam.			Tabora.			Tanga.			Whole Territory.		
	1921	1922	1923	1921	1922	1923	1921	1922	1923	1921	1922	1923
1. Total number of Officials Resident	300	418	349	55	86	78	—C	94	138	559B	836D	800F
2. Average number Resident ..	252	260	229	55	56	47	—C	56	51.14	538B	656D	600F
3. Total number on Sick List ..	274	327	280	36A	87	32	23	42	44	440A	618E	543
4. Total number of days on Sick List	2,179	2,115	1,969	307A	449	265	296	260	221	3,859A	4,245E	3,535G
5. Average daily number on Sick List	5.97	5.79	5.39	0.84A	1.23	0.72	0.81	0.71	0.605	10.57A	11.63	9.68G
6. Percentage of Sick to average number Resident.	2.37	2.23	2.35	1.53A	2.20	1.53	—	1.27	1.18	1.96	1.77	1.61
7. Average number of days on Sick List for each Patient.	7.95	6.47	7.03	8.53A	5.16	8.28	12.87	6.19	5.02	8.77	6.87	6.51
8. Average Sick Time to each Resident	8.65	8.13	8.60	5.58A	8.02	5.64	—	4.64	4.32	7.17	6.47	5.89
9. Total number Invalided .. ..	2	6	7	—	1	—	—	—	1	9	13D	14
10. Percentage of Invalidings to total Residents.	0.66	1.44	2.01	—	1.16	—	—	—	0.72	1.6	1.56	1.75
11. Total Deaths .. ..	3	4	1	1	—	1	1	—	—	5	6D	6
12. Percentage of Deaths to total Residents.	1.0	0.96	0.29	1.82	—	1.28	—	—	—	0.89	0.72	0.75
13. Percentage of Deaths to average number Resident.	1.19	1.54	0.44	1.82	—	2.13	—	—	—	0.93	0.91	1.00
14. Number of Cases of Sickness contracted away from Station.	—	—	—	1	—	3	—	—	—	—	—	16

A.—Figures for 1921 taken from Annual Medical Report, 1921, with some amendments (A).

B.—From 14 Stations shewn in Report 1921. Census 1921 gives 621 European Officials on 24/4/1921.

C.—Figures not available, the Census 1921 shews 59 European Officials at Tanga; the answers to Questions 6, 8 and 13, calculated on this figure would be 1.37, 5.02 and 1.69 respectively.

D.—For whole Territory: compiled from staff records.

E.—From 17 Stations for which returns are available, viz.:—Dar-es-Salaam, Dodoma, Tanga, Tabora, Iringa, Mikindani, Lindi, Kilwa, Bukoba, Utete, Kilossa, Pangani, Arusha, Songea, Mwanza, Tukuyu, Bagamoyo; the answers to Questions 5 to 8 are calculated from these figures, the answers to remaining Questions are calculated on number of Officials Resident in whole Territory (*i.e.*, answers to Questions 1 and 2).

F.—Approximately; accurate figures not available.

G.—From 21 Stations shewn on Table I. on pages 25-26.

TABLE III.

“ SHOWING MORBIDITY RATES FOR MALARIA AND BLACKWATER FEVER AMONGST OFFICIALS,” DAR-ES-SALAAM.

	EUROPEAN OFFICIALS.						ASIATIC OFFICIALS.					
	Total days off duty.			Days off duty for Malaria.			Total days off duty.			Days off duty for Malaria.		
	1921	1922	1923	1921	1922	1923	1921	1922	1923	1921	1922	1923
January ..	241	178	156	86	40	90	165	330	269	45	184	138
February ..	140	180	96	80	19	18	69	315	344	31	92	114
March ..	137	241	247	36	82	31	—	375	274	—	138	94
April ..	137	152	214	56	71	10	59	244	208	28	93	51
May ..	219	218	229	46	92	107	66	316	453	31	203	287
June ..	268	266	192	155	90	105	54	398	335	43	228	273
July ..	132	237	151	74	75	57	174	311	337	126	176	154
August ..	113	102	95	47	18	9	202	213	238	96	94	95
September	230	107	89	107	42	27	210	158	166	97	47	56
October ..	117	123	236	11	18	20	228	175	182	97	57	65
November..	121	203	197	19	60	6	272	231	168	122	83	50
December ..	109	108	146	13	40	29	377	279	339	251	128	129
TOTAL ..	1,964	2,115	2,048	730	647	509	1,876	3,345	3,313	967	1,523	1,506
											41	49
												99

Percentage of days off duty for Malaria and Blackwater Fever  
to total days off duty 1921 .. .. 39·26  
Do. do. 1922 .. .. 36·45  
Do. do. 1923 .. .. 27·10  
Returns for Europeans incomplete from Sewa Hadji Hospital for 1921 and 1922.

Percentage of days off duty for Malaria and Blackwater Fever to total days off duty 1921 .. .. 53·73  
Do. do. 1922 .. .. 47·02  
Do. do. 1923 .. .. 48·45  
For 1921 no returns are available from the Sewa Hadji Hospital for the first six months of the year for Asiatics and none for Europeans for any part of the year.

TABLE IV.

“SHOWING MORBIDITY RATES FOR MALARIA AND BLACKWATER FEVER AMONGST OFFICIALS,” TANGA.

EUROPEAN OFFICIALS.										ASIATIC OFFICIALS.											
Total days off duty.				Days off duty for Malaria.			Days off duty for B.W. Fever.			Total days off duty.			Days off duty for Malaria.			Days off duty for B.W. Fever.					
1921 1922 1923				1921 1922 1923			1921 1922 1923			1921 1922 1923			1921 1922 1923								
January ..	13	27	7	5	—	—	—	—	139	56	98	18	51	76	—	—	—				
February ..	29	24	21	2	16	—	—	—	181	124	95	23	65	54	15	—	—				
March ..	96	24	35	5	20	—	—	—	189	200	175	18	55	84	39	—	—				
April ..	57	18	5	13	3	2	—	—	141	123	78	43	57	45	36	—	—				
May ..	24	45	25	10	32	13	—	—	144	181	130	23	105	96	13	—	—				
June ..	9	16	40	6	16	32	—	—	74	122	174	48	56	92	—	—	—				
July ..	23	32	19	14	21	13	—	—	107	194	185	47	132	129	—	—	—				
August ..	4	20	6	4	15	3	—	—	58	148	99	19	66	61	—	—	—				
September ..	18	32	15	—	9	2	19	—	85	93	123	9	39	44	—	—	—				
October ..	9	9	20	9	4	13	—	—	50	91	101	16	40	40	—	—	—				
November ..	—	3	7	—	1	1	—	—	44	84	113	8	35	12	—	—	—				
December ..	14	10	20	11	3	10	3	—	26	142	91	—	66	11	—	—	—				
TOTAL ..	296	260	220	79	140	89	22	—	1,238	1,558	1,462	272	767	744	103	—	—				
Percentage of days off duty for Malaria and Blackwater Fever to total days off duty										Percentage of days off duty for Malaria and Blackwater Fever to total days off duty											
Do.	do.	do.	1921	..	..	..	..	34.12	water								1921 ..				30.29
Do.	do.	do.	1922	..	..	..	..	53.85	Do.								1922 ..				49.23
Do.	do.	do.	1923	..	..	..	..	40.45	Do.								1923 ..				50.89

TABLE V.  
"SHOWING MORBIDITY RATES FOR MALARIA AND BLACKWATER FEVER AMONGST OFFICIALS," TABORA.

EUROPEAN OFFICIALS.										ASIATIC OFFICIALS.								
Total days off duty.				Days off duty for Malaria.			Days off duty for B.W. Fever.			Total days off duty.			Days off duty for Malaria.			Days off duty for B.W. Fever.		
1921 1922 1923				1921 1922 1923			1921 1922 1923			1921 1922 1923			1921 1922 1923			1921 1922 1923		
January ..	20	32	52	—	11	1	—	—	—	68	115	211	24	103	107	—	—	—
February ..	40	10	19	—	9	3	—	—	—	67	187	191	47	146	93	—	—	—
March ..	17	21	13	—	11	3	—	—	—	221	231	182	104	149	66	—	—	—
April ..	77	39	46	—	9	13	—	—	8	90	210	277	35	120	142	—	—	—
May ..	17	73	90	6	63	24	—	—	33	86	289	193	46	182	82	—	9	—
June ..	2	51	32	—	42	32	1	—	—	128	247	273	33	158	134	—	19	—
July ..	26	30	36	—	12	32	22	—	—	17	167	367	8	140	169	—	—	—
August ..	13	28	31	—	16	28	—	—	—	43	88	208	—	77	132	—	—	—
September ..	58	26	45	33	6	1	—	—	—	126	87	274	44	63	90	—	—	—
October ..	10	41	25	8	11	11	—	—	—	102	15	111	47	6	33	—	—	—
November ..	21	74	15	16	7	6	—	—	—	97	164	115	26	96	36	—	—	—
December ..	6	24	20	5	13	—	—	—	—	117	131	73	79	51	31	—	—	—
TOTAL ..	307	449	424	68	210	154	23	—	41	1,162	1,931	2,475	493	1,291	1,115	—	28	—

Percentage of days off duty for Malaria and Blackwater Fever	to total days off duty	1921 ..	..	..	29.64
Do.	do.	1922 ..	..	..	46.77
Do.	do.	1923 ..	..	..	46.00

Percentage of days off duty for Malaria and Blackwater Fever to total days off duty 1921 .. 42.43  
Do. do. 1922 .. 66.86  
Do. do. 1923 .. 45.05

## (c)—ASIATIC OFFICIALS.

## GENERAL REMARKS.

There were nine deaths amongst Asiatic Officials in 1923, as in the two preceding years. On the recommendation of medical boards, nine were invalided to India, as against 6 and 5 in the two preceding years. The causes of death and invaliding are shewn in the tables below.

Malaria and Blackwater Fever contribute very largely to the sickness rates of Asiatic Officials. Medical Officers report that they are neglectful of precautionary measures, especially in the taking of quinine. Even when suffering from an attack of Malaria, there is great reluctance to taking quinine by mouth and a preference for quinine injections is shewn. There is little doubt that very inadequate courses of quinine treatment after an attack are the rule rather than the exception.

Seven Asiatic Officials suffered from Blackwater Fever: one, a Sub-Assistant Surgeon, died; the rest recovered. Two of these were resident in Dar-es-Salaam, two in Tabora, one in Lindi, one in Kilwa, and one fell sick at Kilosa, while on transfer from Mahenge to Tabora: in the returns this case is shewn under Mahenge.

## Causes of Death amongst Asiatic Officials:—

	1921.	1922.	1923.
Enteric Fever ... ..	1	0	0
Malaria ... ..	0	3	1
Blackwater Fever ... ..	3	1	1
Plague ... ..	1	1	0
Pneumonia ... ..	2	2	1
Septicæmia ... ..	0	0	1
Small-pox ... ..	0	0	1
Tuberculosis ... ..	0	0	2
Cerebral Hæmorrhage ... ..	0	1	0
Heart Failure ... ..	2	0	0
Fatty Degeneration of Heart ... ..	0	0	1
Nephritis ... ..	0	1	0
Alcoholism (acute) ... ..	0	0	1
	<hr/>	<hr/>	<hr/>
	9	9	9
	<hr/>	<hr/>	<hr/>

## Causes of Invaliding from the Territory:—

	1921.	1922.	1923.
Malaria ... ..	0	2	0
Blackwater Fever ... ..	2	0	0
Tuberculosis ... ..	1	1	4
Pernicious Anæmia ... ..	0	0	1
Diabetes ... ..	0	2	0
Chronic Rheumatism ... ..	1	0	0
Hemiplegia ... ..	0	0	1
Paralysis ... ..	0	1	0
Neurasthenia ... ..	0	0	2
Loss of Vision ... ..	1	0	0
Chronic Bronchitis ... ..	0	0	1
	<hr/>	<hr/>	<hr/>
	5	6	9
	<hr/>	<hr/>	<hr/>

TABLE VI.

ASIATIC OFFICIALS.—TABLE SHOWING THE SICK, INVALIDING AND DEATH RATES, 1923, BY DISTRICTS.

	Arusha.	Bagamoyo.	Bukoba.	Dar-es-Salaam.	Dodoma.	Iringa.	Kigoma (Ujiji).	Kilwa.	Kondoa-Irangi.	Lindi.	Lushoto (Usambara).
Total number of Officials Resident .. ..	6	14	14	598	74	4	28	11	—	22	5
Average number Resident .. ..	5.2	8	9	472	38.5	3	21.53	9	—	16.17	5
Total number on Sick List .. ..	2	6	6	1,040	168	—	72	16	—	21	4
Total number of days on Sick List .. ..	8	67	59	3,167	609	—	339	62	—	133	15
Average daily number on Sick List .. ..	0.022	0.18	0.16	8.68	1.67	—	0.93	0.17	—	0.36	0.04
Percentage of Sick to average number Resident	0.42	2.25	1.77	1.84	4.34	—	4.32	1.88	—	2.23	0.8
Average number of days on Sick List for each Patient.	4	11.16	9.83	3.05	3.62	—	4.71	3.88	—	6.33	3.77
Average Sick Time to each Resident .. ..	1.54	8.37	6.55	6.71	15.82	—	15.74	6.88	—	8.23	3.00
Total number Invalided .. ..	—	—	—	4	—	—	—	—	—	—	—
Percentage of Invalidings to total Residents ..	—	—	—	0.67	—	—	—	—	—	—	—
Total Deaths .. ..	—	—	—	1	—	—	1	1	—	—	—
Percentage of Deaths to total Residents ..	—	—	—	0.17	—	—	3.57	9.09	—	—	—
Percentage of Deaths to average number Resident	—	—	—	0.21	—	—	4.64	11.11	—	—	—
Number of cases of Sickness contracted away from Residence.	—	—	—	—	—	—	2	—	—	—	—

TABLE VI.—*continued.*

ASIATIC OFFICIALS.—TABLE SHOWING THE SICK, INVALIDING AND DEATH RATES, 1923, BY DISTRICTS.—*continued.*

	Morogoro.	Moshi.	Mwanza.	Namanyere (Uyapa).	Pangani.	Songea.	Tabora.	Tanga.	Tukuyu (Rungwe).	Utete (Rugiji).	Whole Territory.
Total number of Officials Resident .. ..	46	32	16	—	10	2	153	115	4	14	1,000*
Average number Resident .. ..	27	23	15	—	6	2	116	90.14	3	7	877.5*
Total number on Sick List .. ..	49	52	14	—	4	2	112	229	5	5	1,807
Total number of days on Sick List .. ..	216	175	139	—	16	16	1,638	1,465	22	44	8,190
Average daily number on Sick List .. ..	0.59	0.48	0.38	—	0.04	0.04	4.49	4.01	0.06	0.12	22.44
Percentage of Sick to average number Resident	2.19	2.08	2.53	—	0.66	2	3.9	4.45	2	1.7	2.55
Average number of days on Sick List for each Patient.	4.40	3.36	9.93	—	4	8	14.6	6.35	4.5	8.8	4.53
Average Sick Time to each Resident .. ..	8	—	9.27	—	2.66	8	14	12.74	7.3	6.3	9.33
Total number Invalided .. ..	—	—	1	—	—	—	2	2	—	—	9
Percentage of Invalidings to total Residents ..	—	—	6.25	—	—	—	1.7	1.74	—	—	0.9
Total Deaths .. ..	—	—	—	—	—	—	2	2	—	2	9
Percentage of Deaths to total Residents ..	—	—	—	—	—	—	1.30	1.74	—	14.28	0.9
Percentage of Deaths to average number Resident	—	—	—	—	—	—	1.72	2.22	—	28.57	1.02
Number of cases of Sickness contracted away from Residence.	—	—	—	—	—	—	—	—	—	—	—

\* Approximately ; accurate figures not available.  
NOTE.—Returns from Mahenge not available for 1923.

TABLE VII.  
SICK, INVALIDING AND DEATH RATES, ASIATIC OFFICIALS, 1921, 1922 AND 1923.

	Dar-es-Salaam.			Tabora.			Tanga.			Whole Territory.		
	1921B	1922	1923	1921	1922	1923	1921	1922	1923	1921	1922	1923H
1. Total number of Officials Resident	509	463C	598	190	113C	153	—	197C	115	796D	756E	1,000G
2. Average number Resident ..	425	347C	472	172	85C	116	—	148C	90.14	645D	664E	877.5G
3. Total number on Sick List ..	188	983	1,040	201A	473	112	99	265	229	570A	1,898E	1,807
4. Total number of days on Sick List	1,231	3,345	3,167	1,162A	1,931	1,638	1,238A	1,558	1,465	4,083A	7,565E	8,190
5. Average daily number on Sick List	3.4	9.1	8.68	3.2A	5.3	4.49	3.4	4.3	4.01	11.2A	20.7	22.44
6. Percentage of Sick to average number Resident.	0.8A	2.8	1.84	1.9A	4.0	3.9	—	5.3	4.45	1.7A	3.1	2.55
7. Average number of days on Sick List for each Patient.	6.5	3.4	3.05	5.8A	4.0	14.6	12.5A	5.9	6.35	7.2A	3.9	4.53
8. Average Sick Time to each Resident	2.9	9.6	6.71	6.8A	14.4	14	—	19.5	12.74	6.3A	11.4	9.33
9. Total number Invalided ..	1	2	4	—	—	2	—	1	2	5	6	9
10. Percentage of Invalidings to total Residents.	0.19	0.4	0.67	—	—	1.7	—	0.5	1.74	0.6	0.6F	0.9
11. Total Deaths ..	1	1	1	—	1	2	—	2	2	9	9	9
12. Percentage of Deaths to total Residents.	0.2	0.2	0.17	—	0.9	1.30	—	1.0	1.74	1.1	0.8F	0.9
13. Percentage of Deaths to average number Resident.	0.2	0.3	0.21	—	1.2	1.72	—	1.3	2.22	1.4	1.1F	1.02
14. Number of Cases of Sickness contracted away from Residence.	—	—	—	—	—	—	—	—	—	—	—	—

A.—Figures for 1921 from Annual Medical Report, 1921, amended (A) where necessary information is available.

B.—The *sickness* returns for 1921 refer only to cases treated at the European Hospital, whereas the numbers resident refer to the total Asiatic population. For the two Hospitals at Dar-es-Salaam combined, the answer to question 4, for the six months, July–December, 1921, is 1,463 days, figures for the first six months of the year are not available from the Sewa Hadji Hospital. The figures for 1922 refer to both Hospitals.

C.—From 1921 Census. Total resident estimated by adding 33½ per cent. Approximately only.

D.—For 11 Stations shewn in Table "C," Annual Medical Report, 1921. Tanga is not included.

E.—From 15 Stations from which returns received, viz.:—Dar-es-Salaam, Tabora, Mwanza, Kilwa, Bukoba, Utete, Kilossa, Pangani, Dodoma, Iringa, Tanga, Mikindani, Lindi, Tukuyu and Bagamoyo.

F.—Calculated on 1921 Census—804 Asiatic Officials: total resident estimated by adding 33½ per cent.

G.—Approximately; accurate figures not available.

H.—Returns from Mahenge not available for 1923.

## REPORT OF THE HEALTH OF THE KING'S AFRICAN RIFLES.

In the third quarter of the year the 2/1 Battalion of the King's African Rifles was disbanded and the strength of the King's African Rifles thus reduced to two Battalions. This led to a general reorganisation of the distribution of the troops. The 6th King's African Rifles, with headquarters at Dar-es-Salaam, now supplies garrisons to Arusha, Songea and Mahenge, and the 2nd King's African Rifles, headquarters at Tabora, furnishes garrisons to Mwanza, Iringa and Massoko. Some of the personnel of the disbanded Battalions were absorbed into the other Battalions and, owing to numerous changes, a clear presentment of the health of the various garrisons can hardly be supplied. Several Medical Officers, moreover, have assumed that no separate report on the King's African Rifles garrison of their station was required this year, for it is not mentioned in the new Model Medical Report. The information presented is therefore less complete than was the case last year and would have been still more so but for information kindly supplied by the Officers Commanding of the 6th and 2nd Battalions.

One British Officer, who had suffered from a mild attack of Blackwater Fever in Kigoma in 1922, died nine months later in Zanzibar of a second attack of the disease while serving with the garrison furnished by the 2nd K.A.R.

Three British Officers and Non-Commissioned Officers were invalided to England on account of—

- (i) Cerebral Malaria.
- (ii) Blackwater Fever; contracted in 1922.
- (iii) Tuberculosis.

All these were serving at Dar-es-Salaam with the 6th K.A.R.

Average number of British Officers and Non-Commissioned Officers of all Battalions resident in 1923 was	...	...	...	...	...	68
Death	...	...	...	...	...	1
Percentage of Deaths to average number resident	...	...	...	...	...	1.47
Invalided	...	...	...	...	...	3
Percentage of Invalidings to average number resident	...	...	...	...	...	4.41

2ND BATTALION, KING'S AFRICAN RIFLES.

The Battalion took over two new stations (Iringa and Massoko) in July and August respectively and the garrison hitherto furnished by this Battalion to Zanzibar was withdrawn in June.

HEADQUARTERS, TABORA.

Average strength	Native ranks during	1923	...	...	...	...	285.25
Average number reporting sick daily			...	...	...	...	23.9
							<i>i.e.</i> 8.38 %
Deaths	...	...	...	...	...	...	c
Invaliding	...	...	...	...	...	...	i

The invaliding was necessitated by Peripheral Neuritis. 563 cases, as against 317 in 1922, were admitted to hospital: they were suffering from:—

Chicken-pox	...	...	...	16	Gastritis	...	...	...	...	2
Dysentery (Amœbic)	...	...	...	6	Diarrhœa	...	...	...	...	25
Enteric Fever	...	...	...	1	Constipation	...	...	...	...	1
Gonorrhœa	...	...	...	34	Colic	...	...	...	...	2
Influenza	...	...	...	135	Inflammation Lymphatic Gland...					9
Malaria (Aestivo-autumnal)	...	...	...	12	Lymphangitis	...	...	...	...	1
Relapsing (Tick) Fever	...	...	...	2	Soft Chancre	...	...	...	...	2
Rheumatic Fever	...	...	...	3	Sinus of Scrotum	...	...	...	...	1
Septicæmia	...	...	...	1	Orchitis	...	...	...	...	2
Syphilis (Primary)	...	...	...	3	Balanitis	...	...	...	...	1
„ (Secondary)	...	...	...	2	Periostitis	...	...	...	...	2
„ (Inherited)	...	...	...	3	Cellulitis	...	...	...	...	1
									Carried forward	...

Carried forward ...

						Brought forward	...	
Yaws	...	...	...	...	1	Abscess	...	10
Mumps	...	...	...	...	3	Synovitis	...	26
Anæmia	...	...	...	...	1	Myalgia	...	22
Scurvy	...	...	...	...	1	Whitlow	...	1
Neuritis (Peripheral)	...	...	...	...	1	Boil	...	3
„ (Simple)	...	...	...	...	1	Psoriasis	...	1
Epilepsy (Jacksonian)	...	...	...	...	1	Ulcer	...	6
Neuralgia	...	...	...	...	1	Dermatitis	...	1
Sciatica	...	...	...	...	1	Injuries (Local)	...	21
Conjunctivitis	...	...	...	...	44	Gunshot Wound, Neck	...	1
Keratitis	...	...	...	...	1	Fracture	...	2
Inflammation of Middle Ear	...	...	...	...	3	Sebaceous Cyst	...	1
Pleurisy	...	...	...	...	4	Snake bite	...	2
Stomatitis	...	...	...	...	1	Schistosoma Hæmatobium	...	1
Inflammation of Tonsils	...	...	...	...	132	Filaria Bancrofti	...	1
Total								563

It will be observed that 135 cases of Influenza and 132 of mild Tonsillitis were admitted to hospital and the cases of these two diseases account for the large increase in the number of admissions to hospital in 1923.

The case of Jacksonian Epilepsy was the result of a gunshot wound sustained in the Great War. The case of Schistosomiasis was a recent arrival from Nyasaland.

#### MWANZA GARRISON.

Average strength of Native Ranks during 1923	...	...	128.5
Average number of Native Ranks reported sick daily	...	...	11.41 <i>i.e.</i> 8.88 %
Number of admissions to hospital	...	...	63
Deaths	...	...	0

#### IRINGA GARRISON.

Average strength of Native Ranks during 1923	...	...	131
Average number of Native Ranks reporting sick daily	...	...	4.73 <i>i.e.</i> 3.61 %
Deaths	...	...	2 (Murder and Suicide).

#### MASSOKO GARRISON.

Average strength of Native Ranks during 1923	...	...	67
Average number of Native Ranks reporting sick daily	...	...	8.5 <i>i.e.</i> 12.69 %
Number of admissions to hospital (5 months)	...	...	19
Deaths	...	...	0

#### 6TH BATTALION KING'S AFRICAN RIFLES.

##### I. HEADQUARTERS SECTION. EXTRACT FROM REPORT BY J. M. SEMPLE, M.B., B. CH. (DUBL.), B.A.O.

1. *General Health.*—The health of the garrison at headquarters (Dar-es-Salaam) in general has been good, but Malaria continues to account for by far the greatest number of sick.

2. *British Officers and Non-Commissioned Officers.*—The general health has been good, except for Malaria which, although only accounting for an average of 5.75 days on the Sick List for each officer, accounts for 56.5 % of the total sickness. The following table shows the figures for all diseases, and for Malaria and Blackwater Fever alone:—

	All diseases.	Malaria and B.W.F. only.
Total officers resident ... ..	36	36
Average officers resident ... ..	16.08	16.08
Total on Sick List ... ..	17	12
Total days on Sick List ... ..	122	69
Average number daily on Sick List	0.33	0.19
% of Sick to average No. resident ...	2.05	1.18
Average No. days on sick list for each patient ... ..	7.18	5.75
Average sick time for each resident	7.63	4.29
Total number invalided ... ..	3	2
% of Invalided to total residents ...	8.33	5.6
% of Invalided to average No. resident ... ..	18.66	12.44
Total of Deaths ... ..		Nil.
Cases contracted away from residence		„

The invalidings were necessitated by (I) Cerebral Malaria.

(II) Tuberculosis.

(III) B.W. Fever: contracted in 1922.

3. *Other Ranks.*—The diseases which accounted for the greatest number of Sick were, in order of precedence:—

Malaria ... ..	30 %
Disorders of Digestion ... ..	14.4 %
Respiratory Diseases ... ..	13.1 %
Venereal ... ..	7.7 %
Ulcers ... ..	5.7 %

The total number of diseases treated during the period was 871.

Deaths ... ..	3
---------------	---

The deaths were due to:—

- (i) Cerebro-spinal Meningitis.
- (ii) Lobar Pneumonia.
- (iii) Pyrexia of uncertain origin. The patient was admitted with high fever: microfilariae were found in his blood. He died soon after admission, and no other signs or symptoms were discovered. No post-mortem could be obtained.

*Invalided.*

Leprosy ... ..	1
Chronic Bronchitis ... ..	2
General Debility ... ..	2
	—
	5

4. *General.*—Malaria still bears about the same ratio to other diseases for this period as it did for the year 1922. Return of the more important diseases, affecting the native ranks of the K.A.R. and treated in the Sewa Hadji Hospital during the year 1923:—

Malaria ... ..	261
Digestive Diseases ... ..	115
Respiratory Diseases ... ..	114
Gonorrhoea ... ..	56
Conjunctivitis ... ..	41
Ulcers ... ..	50

Abscesses	...	...	...	...	...	...	...	26
Rheumatism and Lumbago	...	...	...	...	...	...	...	25
Pyrexia of unknown origin (?Malaria)	...	...	...	...	...	...	...	21
Filariasis	...	...	...	...	...	...	...	7
Soft sores (venereal)	...	...	...	...	...	...	...	5
Spirillum Tick Fever	...	...	...	...	...	...	...	5
Bilharziasis	...	...	...	...	...	...	...	1
Leprosy	...	...	...	...	...	...	...	1
Local Injuries	...	...	...	...	...	...	...	30

## II. ARUSHA GARRISON 6th KING'S AFRICAN RIFLES.

REPORT BY C. F. SHELTON, M.D. (LOND.), MEDICAL OFFICER, ARUSHA.

Average strength during the year ... .. 190

Average daily number on Sick List ... .. 4.7 = 2.47 % of strength.

Chief admissions to Hospital were for :—

Dysentery (Amoebic)	...	...	12	Conjunctivitis	...	...	...	9
Gonorrhœa	...	...	24	Liver Abscess	...	...	...	1
Influenza	...	...	8	Acute Intestinal Obstruction	...	...	...	1
Malaria	...	...	10	Bronchitis	...	...	...	6
Lobar Pneumonia	...	...	2	Pleurisy	...	...	...	1
Relapsing Fever	...	...	2	Epididymitis (Gonorrhœal)	...	...	...	4
Syphilis (Primary)	...	...	1	Orchitis	...	...	...	3
Syphilis (Secondary)	...	...	2	Soft Chancre	...	...	...	1
Small-pox	...	...	1	Ankylostomiasis	...	...	...	1
Local Injury	...	...	25					

Two askari invalided during the year—for defective eyesight and amoebic abscesses of the liver respectively. Two deaths occurred—one (in Hospital)—after operation for acute intestinal obstruction. The other case was one of sudden death in the lines. Deceased collapsed suddenly while walking out of the latrines. At post-mortem examination the heart was found to be small and under average weight and the heart muscle flabby and fatty: no other abnormality found. A careful investigation of all the attendant circumstances showed no evidence of the man's food having been tampered with.

Change of companies took place early in March.

The amount of venereal disease has been excessive this year (35 admissions): the great majority of these being from the incoming company, many of whom came from Zanzibar without their wives. Otherwise the health of the detachments has been satisfactory.

The sanitation of the lines is very good.

## REPORT OF THE HEALTH OF THE NATIVE POLICE AND WARDERS.

Strength of the Force (African ranks)	...	...	...	...	2,107
Deaths in 1923	...	...	...	...	9
Death rate	...	...	...	...	4.27 per 1,000.

The distribution of the force and the causes of death at each station were as follows :—

Stations.	Strength.	Deaths and Cause of Death.
Depot (Morogoro)	131	
Arusha	73	
Bagamoyo	46	1. Cause unknown, died at Kidugalo.
Namanyere	69	
Bukoba	129	1. Pneumonia.
Dar-es-Salaam	149	1. Syncope. This man fell down dead whilst running to assist in suppressing a fire. A post-mortem examination revealed no pathological conditions.
Dodoma	96	

Iringa	...	...	...	69	
Kilwa	...	...	...	68	1. Pneumonia.
Kondoa Irangi	...	...	...	73	
Tukuyu	...	...	...	81	1. Pneumonia following Influenza.
Lindi	...	...	...	163	1. Tuberculosis.
Mahenge	...	...	...	65	
Morogoro	...	...	...	115	1. Pneumonia.
Moshi	...	...	...	59	
Mwanza	...	...	...	132	
Pangani	...	...	...	50	
Utete	...	...	...	44	
Songea	...	...	...	57	1. Uroemia.
Tabora	...	...	...	168	
Tanga	...	...	...	90	1. Pneumonia
Ujiji	...	...	...	105	
Lushoto	...	...	...	49	
Mafia	...	...	...	26	
Total ... 2,107 Deaths					

The health of the African ranks has been good. The mortality shews a reduction of 2.53 per thousand on that for 1922.

Venereal disease is still the cause of much of the time lost from sickness: at Kigoma, for instance, the Medical Officer reports that of the 560 days spent in hospital by Police and Warders in 1923, 427 were on account of Venereal diseases.

But few reports on the health of the Police for 1923 have been submitted by Medical Officers and for most of this information I am indebted to the Commissioner of Police and Prisons.

#### (d) — GENERAL EUROPEAN POPULATION.

Apart from Influenza, which has been present in a mild form during most of the year, there has been no unusual sickness or mortality. The Registrar-General has kindly supplied a return of the registered deaths, of which a summary follows:—

Dysentery	...	...	...	2	Cerebral Thrombosis	...	...	1
Enteric Fever	...	...	...	1	Chronic bronchitis	...	...	1
Influenza	...	...	...	2	Chronic Fibrosis of lungs	...	...	1
Malaria	...	...	...	3	Broncho-pneumonia (infant)	...	...	1
Blackwater Fever	...	...	...	3	Chronic Dyspepsia	...	...	1
Pneumonia	...	...	...	1	Intestinal Obstruction	...	...	2
Hyperpyrexia (infant)	...	...	...	1	Dropsy	...	...	1
Inanition and Prematurity (infants)	2				Gunshot wound	...	...	1
Diabetes, Gangrene	...	...	...	1				

The deaths from Blackwater Fever occurred at Dar-es-Salaam (patient transferred from Morogoro), Morogoro and Tanga: those from Malaria at Dar-es-Salaam (patient removed from a coastal steamer on which he was an officer), Masasi (Lindi District) and Mahenge: those from Dysentery at Morogoro and Dar-es-Salaam and that from Enteric Fever at Masasi (Lindi District).

By the Government Medical Staff only 19 deaths amongst the European General population were reported: several of the remainder were of the South African Dutch population at Arusha, who, the Medical Officer remarks, do not always consult a doctor even in serious illness.

There has not been a census since 1921, when the General European population was 1826: it is now probably slightly greater.

The births of 35 European children and the deaths of four European infants under one year were registered in 1923: giving an infantile mortality rate of 114.29 per thousand.

The information available is not sufficiently detailed to enable a table of Sick, Invaliding and Death Rates to be compiled.

### (e)—GENERAL NATIVE POPULATION.

At the census in 1921 the native population of the Territory was estimated to be 4,107,000: registration of births and deaths is not compulsory and no reliable statement of the population in 1923 can be made.

The Infantile Mortality is unknown. The Senior Commissioner, Tabora, Mr. H. C. Stiebel, O.B.E., has taken great interest in this question as regards his district and obtained returns for certain Sultanates in 1922. These shewed 9,768 births and 5,078 deaths under 1 year of age, an Infantile Mortality of 519.9 per 1,000. The Medical Officer, Bukoba, reports 5,085 births and 2,976 deaths in a selected part of the district; the Infantile Mortality for Bukoba thus amounts to 585.2 per 1,000. At Tanga, on the other hand, the figures obtained by the Medical Officer of Health yielded an Infantile Mortality rate of 91 per 1,000 (*see* report of the Senior Sanitation Officer, page 100). It must be conceded that but little reliance can be placed on these estimates. The Infantile Mortality is certainly high: further investigation should be made into the subject.

### LEGAL.

Enactments and Regulations of special Sanitary Interest are recorded by the Senior Sanitation Officer at p. 99.

The Mandate for the Tanganyika Territory was published in the Gazette of 12-1-1923. It provides, *inter alia*, that the Mandatory shall promote to the utmost the material and moral well-being and the social progress of the inhabitants, shall apply to the Territory international conventions respecting the traffic in drugs and shall co-operate in the execution of any common policy adopted by the League of Nations for preventing and combating disease.

Destitute persons: Ordinance No. 1 of 1923 makes provision for the control of destitute persons.

Medical Practitioners and Dentists are specifically exempted from the provisions of the Trades Licensing Ordinance No. 10 of 1923: they are also exempted from the payment of the profits tax imposed on businesses by the Profits Tax Ordinance, No. 8 of 1923.

By Government Notice No. 84 of 1923 the importation of "Opium" by post (excepting Parcels Post) was prohibited. This notice also requires that opium imported shall be in the form of a recognised medical preparation and that the nature of the contents shall be endorsed on the outside of the package.

The Intoxicating Liquor Ordinance No. 24 of 1923 controls the manufacture, sale and supply of intoxicating liquor: it came into force on 27th July, 1923.

The Master and Native Servants Ordinance, No. 32 of 1923 provides for the housing and supply of food and medical attendance to native employees. It is to come into force on January 1st, 1924. Deaths of native servants during service are to be reported and provision is made for compensation in the event of injury caused by defective machinery.

Under the Customs Ordinance, 1923, which is to come into force on January 1st, 1924, drugs, dressings, medicines, antiseptics, scientific instruments and apparatus, surgical instruments and appliances and radium are admitted free of duty. Proprietary medicines are to pay 30 per cent. *ad valorem*.

### REGISTRATION OF MEDICAL AND DENTAL PRACTITIONERS.

On January 1st, 1923, the Register contained the names of:—

Medical Practitioners	...	...	...	...	...	...	...	31
Dentists	...	...	...	...	...	...	...	1

During 1923 the following additions were made to the Register:—

Medical Practitioners	...	...	...	...	...	...	...	3
Dentists	...	...	...	...	...	...	...	0

and there were removed from the Register, on final departure from the Territory, the names of:—

Medical Practitioners	...	...	...	...	...	...	2
Dentists	...	...	...	...	...	...	0
On December 31st, 1923, there were, therefore, on the Register the names of:—							
Medical Practitioners	...	...	...	...	...	...	32
Dentist	...	...	...	...	...	...	1

Of the new names added to the Register one is that of a member of the Medical Department and two of practitioners engaged in missionary work.

Of the twenty persons holding a licence to practise medicine and surgery at the commencement of the year, two, after leaving Government service, were granted renewals of their licences to practise privately. On the recommendation of the Medical Board, one of these licences was subsequently withdrawn. Thirteen new licences, all to persons in the Medical Department, were issued during the year and two lapsed on the death of the licencees. At the end of the year, therefore, there are thirty licensed practitioners, one of whom is in private practice and twenty-nine in the Medical Department.

The Medical Board consisted, on 31st December, 1923, of Dr. J. B. Davey (Chairman) and Drs. A. H. Owen and G. G. Butler (Members), Dr. Owen having been nominated to fill the vacancy caused by the retirement from the service of Dr. Owen Prichard.

#### REGISTRATION OF DRUGGISTS.

To the list of licencees there were added, during 1923, two new names: one of these persons is in business and the other is the newly-appointed Assistant Medical Storekeeper. The register contained, therefore, five names at the close of the year.

#### RECOMMENDATIONS.

1. A considerable increase in the *Staff of European Medical Officers*: There are 22 Administrative Districts and a greater number of sub-districts, some of which are of large extent. It is considered that there should be European Medical Officers at the headquarters of at least the 18 most important districts. A heavy strain is thrown upon the existing personnel by the paucity of staff and much of their time is occupied in routine duties, such as medical boards, reporting upon the health of sick officials, examining officials prior to departure on leave, examinations of recruits for the K.A.R. and Police, duties which would be distributed over a large number of medical officers were the staff greater. Moreover, it by no means infrequently happens that medical officers at busy stations are called upon to make long journeys hurriedly, with resulting disorganisation of their work, to visit officials struck down by serious illness at stations where no European medical attention is available. In addition, Medical Officers are required for special duties in connection, principally, with endemic diseases. In the first instance investigation work is required—into the distribution of Human Trypanosomiasis, Yaws, Ankylostomiasis, Schistosomiasis, Venereal Diseases, etc. Having gained some idea of the prevalence and distribution of these diseases and the areas in which work can be most profitably undertaken, some of these Officers would then be established at suitable centres with branch hospitals, in the immediate charge of trained Native or Asiatic assistants, at subsidiary centres. I would emphasise that, at these centres and subsidiary centres, it should be the object to treat, as far as possible, all cases which present themselves. The time has not arrived in this country for watertight compartments to deal with individual diseases. In districts where Yaws, for example, is specially prevalent, special facilities for dealing with it should be provided, but the organization would be the same as that dealing with Ankylostomiasis and Sleeping Sickness, if they exist, in the same area. The difference between these centres and ordinary medical stations would be that the Medical Officer at the former should be unhampered by a great part of the official routine and able to devote himself to a study of the prevalent diseases amongst natives and the best methods of attacking them. He would gradually raise the general standard of sanitation and health in the villages. Infant mortality and its causes would also be his concern and, after some knowledge had been gained, his staff might be strengthened by the addition of a European nurse. To the writer the future of this country seems to depend so greatly on increase of its scanty native population that the preservation of native life appears all important. Large tracts of country are now practically abandoned to tsetse fly and wild beasts for want of cultivators.

2. *Sanitary Staff*.—At present Medical Officers on the general list are seconded as Medical Officers of Health: fortunately we have three Medical Officers who hold the D.P.H. I consider that a separate division, consisting of at least four Medical Officers of Health, should be formed. One of these would be stationed at each of the three most important townships—Dar-es-Salaam, Tanga and Tabora. The fourth would act as relief for these officers. The addition of a fifth Medical Officer of Health, available for duty in any special emergency and, at other times, to improve the sanitary organization in townships of lesser importance, where the Medical Officer is too occupied with medical work to be able to attend to these duties satisfactorily, would be of great value. By spending a month or two at each station this officer could, in conjunction with the Medical Officer of the station, effect great improvements and possibly economies also. New townships are being declared and an increase in the staff of Sanitary Inspectors to keep watch on their development is, or shortly will be, required.

3. *Improvement of Street Drainage and Roads* in the principal towns. Considerable improvements have been effected by the Public Works Department, but much more remains to be done, especially in the native quarters of towns. The deplorable condition of the roads in native quarters makes conservancy work a matter of difficulty, and the maintenance of earth drains, one of which in Dar-es-Salaam is in a cutting quite 10 feet deep, absorbs sanitary labour which could profitably be used elsewhere. In the wet season the sides of these drains fall in and the channel becomes blocked. The deeper drains should be piped and covered over.

4. The amount of *Clerical and Storekeeping Work* has steadily increased and now occupies a great deal of the time of Medical Officers at the important stations. A class of assistants, of the type employed by the Germans in large numbers in their medical department of this Territory, is needed. A man who could do the dispensing; keep store ledgers; prepare indents on the headquarters store and returns of equipment; order, store and issue the food for native patients; type letters, make out pay vouchers, and do the hundred and one small jobs which, at present, consume so much of a Medical Officer's time would relieve him of an immense amount of work for which, in most cases, his training has not prepared him. He would then be able to devote more attention to his professional work. I believe that excellent candidates could be found in the shape of retired sick bay personnel of the Royal Navy and Warrant and N.C.O.'s of the R.A.M.C. Application has not been made for these men, but I consider that the question should be carefully considered. Some form of assistance in clerical and routine duties is becoming an urgent necessity.

5. An *Office Superintendent or Chief Clerk* for the Principal Medical Officer's Office is also an urgent necessity and has been mentioned previously. A *European Accountant* at headquarters would enable the cost of maintenance in the various hospitals to be ascertained and a closer watch to be kept over expenditure with resulting economy.

6. The need for a *Medical Entomologist* has been mentioned by the Senior Sanitation Officer (p. 101) and in the Report for 1922. Recent advances in Tropical Medicine show that the economical and intelligent application of anti-malarial measures demand more than a blind attack on all mosquitoes and that expensive operations may lead to no diminution of Malaria. A careful entomological survey is a necessary preliminary to success. But Malaria is by no means the only problem awaiting such an officer, large as that problem is. The officer appointed should be a biologist with some medical training and equipped to advise on helminthic questions. "Medical Biologist" would perhaps be a better designation.

7. The *Sewa Hadji Hospital* occupies what will shortly become a very valuable site in connection with shipping. For a hospital the site is by no means ideal. It is suggested that the present site should be abandoned to other purposes and a new hospital, designed and equipped on modern lines, erected elsewhere. Probably a suitable site could be found in the neighbourhood of the present Infectious Diseases Hospital. It might be advisable to retain a small part of the present building as a first aid station, for the new hospital will necessarily be at some distance from the harbour and railway and public workshops. Most of the buildings of the present hospital are poorly constructed and inconvenient for the purpose. The new hospital should comprise Indian as well as Native accommodation.

8. Recommendations concerning *Prisons* will be found on pp. 170-171.

9 *Reduction of Vegetation in the Coast Towns* and other low-lying malarious and humid localities is needed. It is referred to by the Senior Sanitation Officer on pp. 46-47. In Dar-es-Salaam suitable building sites will shortly become difficult to find and it is considered that the Botanical Gardens should be reduced to a small open space, the ground thus set free being used for building purposes. Expense in upkeep of these gardens, which do much to cut off the breeze from European residences, would be saved. The presence of a veterinary paddock in the best residential quarter of this town is an anomaly which must also shortly give way to the convenience of residents.

10. A qualified *Assistant to the Director of the Laboratory* is needed as has been mentioned in the Report for 1922.

11. The need for a *Building Inspector* and a *Sanitary Engineer* have been mentioned by the Senior Sanitation Officer at p. 101, and I need only endorse his remarks.

12. *Registration of Births and Deaths*, amongst all denominations, in all townships. I need hardly adduce arguments to prove the desirability of this measure.

13. *Disinfectors for Dar-es-Salaam*. It is considered that an efficient disinfectors, a large-sized Thresh or a Washington Lyon, should be provided for Dar-es-Salaam.

14. Raising the level of the lower part of *Gerezani Creek*, Dar-es-Salaam. This creek is probably still the main source of anopheline mosquitoes in Dar-es-Salaam and no special funds from Public Works votes have been available for work on it during the past two years; the amount that can be done with surplus sanitary labour is small. This subject is referred to by the M.O.H., Dar-es-Salaam, on p. 50.

15. *Removal of Refuse by Motor Transport*. This has been suggested by the M.O.H., Dar-es-Salaam. Ox transport is employed in the larger towns and hand-drawn carts in places of lesser importance: it is admittedly a slow and cumbrous method. A careful trial should be made in Dar-es-Salaam, for I am not convinced that the change would make for efficiency or economy at present. Our incinerators are in the township: when the time comes for refuse destruction at a depot some distance outside the town, no doubt motor transport will be adopted.

16. *Housing of Medical Officers*. It would make for contentment in the service were good houses, conveniently situated as regards the work, to be built and definitely assigned to Medical Officers. The existing system is for houses to be allocated by the Senior Administrative Officer of the district and the Medical Officer has no security of tenure.

17. The time has, perhaps, not yet arrived for a *Medical Training School for Natives*, but it cannot be far distant and some suggestions on the subject may not be out of place. It will necessarily be in close proximity to a large native hospital and to one of the principal centres of the Education Department. In the early stages of training the pupils should devote part of their day to continuing their general education at the Education School. Living is dear on the coast and more promising pupils would probably be found in the interior of the Territory: their work, when training is completed, will be principally amongst tribes in the interior. For all these reasons Tabora or Mwanza suggest themselves as possible sites for the Medical Training School.

J. B. DAVEY,  
*Principal Medical Officer.*

### III. SANITATION.

This report of the work of the Sanitation Division during 1923 is submitted in the same form as the Model Sanitary Report issued by the Colonial Office in May, 1923.

#### I. ADMINISTRATIVE.

##### STAFF.

The staff of the Sanitation Division was as follows:—

Senior Sanitation Officer.

M.O.H. Dar-es-Salaam

M.O.H. Tanga

European Sanitary Superintendent 1st grade 2.

European Sanitary Superintendent 2nd grade 5.

Asiatic Sanitary Inspectors 3.

In addition a number of partially trained natives are employed as Native Sanitary Inspectors, Mosquito finders, Vaccinators, etc.

The Senior Sanitation Officer was on duty throughout the year.

Dr. R. Nixon acted as M.O.H., Dar-es-Salaam, from January 1st-20th May.

Dr. R. R. Scott, acted as M.O.H., Dar-es-Salaam, from 21st May-December 31st.

Dr. A. I. Meek acted as M.O.H., Tanga, from January 1st-June 12th.

Dr. R. Nixon acted as M.O.H., Tanga, from 13th June-27th November.

Dr. A. I. Meek acted as M.O.H., Tanga, from 28th November-December 31st.

Three European Sanitary Superintendents were on leave during part of the year.

The greater part of the European and Asiatic staff is stationed at Dar-es-Salaam and Tanga. Outside these two towns, one European Sanitary Superintendent is stationed at Tabora and Asiatic Sanitary Inspectors at Mwanza and at Kigoma. The Medical Officers or Sub-Assistant Surgeons stationed at all towns except Dar-es-Salaam and Tanga have to act as Medical Officers of Health in addition to their other duties.

#### FINANCIAL.

The following sums were allocated for Sanitation and Public Health work during the financial year.

The salaries of the European and clerical staff are not included.

Native Sanitary Inspectors (including salaries for Asiatic Sanitary Inspectors)							£1,980
Vaccinators	...	...	...	...	...	...	500
Sanitary Labour	...	...	...	...	...	...	11,700
Sanitary Equipment	...	...	...	...	...	...	720
Upkeep of Quarantine and Infectious Diseases Hospitals	...	...	...	...	...	...	800
Maintenance of Lepers, Lunatic and Incurables	...	...	...	...	...	...	4,400
Pauper Burials	...	...	...	...	...	...	10
Epidemic outbreaks and special Sanitary Measures	...	...	...	...	...	...	1,000
Sleeping Sickness Measures	...	...	...	...	...	...	800
Oils and Disinfectants	...	...	...	...	...	...	400
Uniforms for Sanitary Inspectors	...	...	...	...	...	...	175

In addition, other Medical votes, such as "Medical and Surgical Stores," "Vaccine and Serum," have been drawn on as required.

#### INSPECTIONS.

Either the Principal Medical Officer, the Acting Deputy Principal Medical Officer or the Senior Sanitation Officer inspected the following stations during the year:—

Arusha, Dodoma, Kasanga, Kigoma, Kilossa, Kilwa, Korogwe, Lindi, Mikindani, Morogoro, Moshi, Muheza, Musoma, Mwanza, Namanyere, Pangani, Shinyanga, Tabora, Tanga.

Extracts from the reports on these stations, with recommendations for the improvements of any defective conditions observed, were sent to the Departments concerned.

#### RURAL SANITATION.

...

With the present staff, little can be done to improve the sanitary condition of the rural areas. Even with a very much larger European personnel attached to the Sanitation Division, years of propaganda would be required before some of the tribes in the Territory could be taught to obey the most elementary sanitary rules.

The African native is still a most conservative person, and what was good enough for his predecessors is good enough for him.

Administrative Officers throughout the Territory are most anxious to improve the conditions under which the natives live and to reduce the incidence of infectious and other disease.

What is required is to convince the chiefs and better-class natives that alterations and improvements suggested are for the general good of the native and not merely devices of the Government to worry and annoy.

Under present conditions it seems that the only means available is by lectures delivered to teachers and pupils in the schools. Many of the pupils are sons of chiefs, and if they can be taught that personal hygiene and Elementary Sanitation are desirable, there is some

hope that conditions will improve amongst the rural communities. The different tribes in the Territory vary greatly in their attitude towards medical and sanitary innovations. The Bukoba district on the Uganda border is inhabited by a fairly intelligent type of native with progressive chiefs; an extract from the Annual Report on the Bukoba district submitted by Dr. Williams follows:—

“ I would like here to record my appreciation of the services rendered by the Native Administration in connection with suspected outbreaks of any epidemic. They seem always to report at once and to institute a very strict quarantine, on their own initiative, and when I have been able to go out myself, they have always rendered me the utmost assistance, and I have found them to have made satisfactory arrangements for isolation, and the results of their precautions speak for themselves.”

On the other hand, investigations in less advanced areas may do more harm than good. The Sultanate of Meatu borders on the Sleeping Sickness Area in the Mwanza district. As this Sultanate is also infested with *G. swynnertoni*, native dressers were sent there to take a series of blood slides to ascertain if Sleeping Sickness was present in the area. The result is stated in the following extract from a report by the Senior Commissioner of the Mwanza district, who has always shewn the greatest keenness in carrying out Anti-Sleeping Sickness measures in his district:—

“ On the 13th December I received a report from the Sultan of Meatu that his natives were in much fear of the medical dressers taking blood slides and that as a direct result thereof many were removing to other areas in this district and even to the Mkalama sub-district.

“ He pointed out that his natives were wild and primitive and had never been accustomed to any medical or hospital requirements. I saw Dr. Thomson and we agreed that the only possible plan would be to recall the dressers and suspend operations until he or I could tour the area and superintend the matter.”

During 1923 an attempt was made to ascertain the total number of lepers in the Territory. In the report sent in by the Administrative Officer in charge of the Lindi district, which adjoins Portuguese East Africa, the following remarks occur:—

“ The rumour has recently gained currency that all lepers are to be taken by force and sent away to camps. The natives' objections to this are, of course, well enough known. The rumour appears to have come from the Coast. Efforts have been made to assure the natives that their fears are at present groundless, but it is difficult to eradicate such rumours once they have gained ground. Already three lepers are reported to have crossed to P.E.A. to escape the proposed segregation.”

The spread of education and improved Urban Sanitation must in time react on the rural areas. Natives who have been to school and who have resided in a well-kept town will come to realize that personal hygiene and efficient sanitation result in greater comfort and improved health. The natives belonging to some African tribes keep their huts and immediate surroundings reasonably clean, while the deep pit latrine in common use seldom gives rise to any nuisance. Other tribes use no latrines and have no idea of sanitation. Plans of simple types of field incinerators have been prepared and will be issued to Medical Officers or Administrative Officers in the hope that they will be able to arrange for their erection in the larger villages.

Ordinance No. 25 of 1923. “ An Ordinance to Regulate Native Authority ” contains provisions which should be of considerable assistance in preventing the onset and spread of Epidemic Diseases. Section 6 of this Ordinance gives powers to an Administrative Officer to issue orders to natives under his jurisdiction for a number of purposes, amongst these the following are of importance to this Department:—

Preventing or remedying the pollution or obstruction of any river, stream, water course, spring, or water hole.

Prohibiting, restricting or regulating the immigration of natives from or to the area under his jurisdiction.

Preventing the spread of infectious or contagious disease, whether of human beings or animals, and for the care of the sick.

Requiring the death of any native dying within his jurisdiction to be reported to the headman or other authority.

## URBAN SANITATION.

The financial condition of the Territory did not permit of any major works of Sanitary importance being carried out during 1923 in the majority of the townships. Improvements in the larger Urban areas are commented on in the reports on pp. 47 to 85. The minor works completed in the less important towns were in the main confined to improvements in existing structures, such as markets, slaughter-houses, public latrines and incinerators. An attempt is being made to erect incinerators of the same type in all of the smaller towns. If this policy is carried out, a more correct estimate of the number necessary for each town, and of the sanitary personnel required will be possible. An additional advantage will be that Native Sanitary Inspectors or Sanitary Headmen can be taught to use the type incinerator to the best advantage and will not be faced with a fresh problem when transferred from one station to another. The type incinerator selected is the Khartoum pattern figured on page 172 of Volume I. of Byam and Archibald's work. Taken as a whole the sanitary condition of the Urban areas of the Territory has been satisfactory throughout the year, and no serious outbreak of infectious disease was reported during 1923.

The Township Rules, 1923, were brought into force on April 1st, and gave the Township Authorities the powers required to maintain the townships under their control in a sanitary condition.

The rules contain sections dealing with suppression of mosquitoes, and other nuisances, insanitary premises, disposal of refuse and night soil, provision of dustbins, water supplies, food protection, including milk and aerated waters, control of laundries and other trades, slaughter-houses, offensive trades, and the inspection and control of common lodging houses.

In addition, the building rules included lay down the procedure to be followed before a privately-owned building can be erected and the technical portion of these rules ensure that buildings shall be constructed of proper materials and in a satisfactory manner. Provision is inserted for the control of native type huts and houses in the native area.

The section dealing with Police Offences specifies a number of offences against good order in the township. The "Township Rules" have now been in force for nine months and in some cases alterations appear to be desirable. A series of amendments is under consideration at the present time.

Government Notice No. 48 appoints the following officials to be members of the Township Authorities:—

*President.*—The Senior Commissioner or next Senior Administrative Officer, or the Administrative Officer in charge of the District or Sub-District in which the township is situated.

*Members.*—An officer of each of the following departments to be nominated by the head of the department concerned:—

The Medical Department,  
The Public Works Department; and  
The Land Department.

The Officer of the Medical Department shall be the Executive Officer, unless the President otherwise directs.

The appointment of Medical Officers of Health and Medical Officers as Executive Officers has greatly increased the clerical work which has been done by members of the Medical Department. Few of these officers are provided with clerks, and the question of appointing other Executive Officers is under consideration.

Excessive vegetation continues to be one of the most objectionable features of the coastal towns. A considerable number of trees have been removed from the Botanical Gardens at Dar-es-Salaam, but in the opinion of this Department very many more, particularly heavy shade trees, such as mangoes, could be removed with advantage. These not only obstruct the free passage of the North East Monsoon which blows during the hot season, but also serve as shelters for mosquitoes during the day. Coconut palms, incriminated by Dr. Haworth as breeding places of mosquitoes, exist in thousands in the coastal towns. Under the Township Rules the planting of coconut trees within Township areas has been prohibited, but until large numbers of the present trees have been removed, the stagnant air and excessive numbers of mosquitoes, so noticeable in the towns on the coast, will continue to be a menace to the health of the residents.

His Excellency the Governor, after a visit to Lindi in the middle of the year, instructed the Senior Commissioner to remove the coconut palms between the sea and the European residences and Bazaar. The total number of palms in Lindi town is 10,998 and 1,982 of these are to be removed. The Senior Commissioner stated that he felt confident that when the area is cleared the difference in temperature will be very great indeed. No report of the result of this experiment has been received by this Department, but it is to be hoped that if the experiment is a success, permission will be granted to remove numerous coconut trees from other coastal towns.

EXTRACT FROM THE ANNUAL REPORT OF DR. R. R. SCOTT, M.C., MEDICAL OFFICER  
OF HEALTH, DAR-ES-SALAAM

The year 1923 has not been marked by any events of great importance from a Sanitary point of view.

Routine work has been carried on, but the universal financial stringency has prevented the execution of many of the public works, which were recommended in the reports for previous years.

No outbreaks of serious epidemic disease have occurred, and the rainfall has been very low, but in spite of this the incidence of Malaria, a preventable disease, remains high.

The conditions affecting the health of the town have been described at length in the Reports for 1921 and 1922; this Report is therefore short, since it is unnecessary to recapitulate the information already given.

It is necessary to comment, however, on the introduction of the new Township Rules which came into force on 1st April, 1923. These rules amplify and cancel previous legislation under which the sanitation, private building, and conduct of the people in the Township were controlled, while the boundaries of the Township have been amended so as to include certain areas formerly outside the Township, but which it was considered advisable to bring under control.

The year has seen the completion of the new Market, which does great credit to the Public Works Department, and the extension of the water mains through the Commercial and Residential areas. These are works of outstanding importance and make a long step forward in the improvement of the town. Extensive building of native houses is proceeding on the area between the new Market and Msimbazi valley on most satisfactory lines.

Tuberculosis has been added to the list of notifiable Infectious Diseases.

PREVENTIVE MEASURES.

*Mosquito-borne Diseases.*—Routine searching for breeding places of mosquitoes and maintenance of drains have been continued as usual. Filling-in of low-lying ground has been attempted whenever labour could be spared from maintenance gangs. No money was available from Public Works funds during 1923 for the work of filling and draining the swamps already described in the 1921 Report. This is a very serious matter. Stated briefly, it means that the reduction of locally contracted Malaria and other mosquito-borne disease which might safely be anticipated by the abolition of the permanent breeding grounds immediately surrounding the actual town and within its boundaries does not at the moment justify the capital expenditure required. Available figures are not sufficiently reliable to form the basis of a calculation of the loss of money to the community through sickness and reduced efficiency of both its native and foreign elements, but anti-mosquito measures have been found profitable in all other parts of the world where work has to be carried on by large numbers of persons, and it may therefore be presumed that they would pay in Dar-es-Salaam.

Orenstein, now C.S.O. to the Mines in the Transvaal, who has been quoted before, has stated: "I want to express my absolute conviction that Dar-es-Salaam can be made healthy: Malaria can be eradicated more easily than in Panama."

The funds which have been available under Public Works votes for the drainage and improvement of swamps for the past few years are shewn below:—

1920-1921	...	...	...	...	...	...	£2,600
1921-1922	...	...	...	...	...	...	1,500
1922-1923	...	...	...	...	...	...	Nil.
1923-1924	...	...	...	...	...	...	Nil.

While considering the question of mosquito breeding, it is necessary to bear in mind that although the total rainfall for the year as recorded at the Health Office was only 25.65 inches as compared with the German average of 42.6 inches, the fall was distributed more evenly throughout the year than usually occurs, while the so-called "heavy rains" were unduly prolonged (*see* Table V., p. 70 and Graph).

The total collections of anopheles larvæ show a slight reduction, although the same searchers have been employed almost throughout.

Comparative Table showing collections of mosquito larvæ found in the Township:—

						1921	1922	1923
Anopheles	..	..	..	..	..	902	690	636
Culex	..	..	..	..	..	1,694	1,332	2,166
Stegomyia	..	..	..	..	..	892	697	1,457
Total						<u>3,488</u>	<u>2,719</u>	<u>4,259</u>

The chief recorded breeding places of *anophelines* were:—

						1921	1922	1923	
1.	dockyard and Kurasini area (consisting of 6 creeks containing fresh water springs)	..	..	..	..	102	140	171	Collections.
2.	Gerezani Valley	..	..	..	..	206	154	153	„
3.	Town (swampy places, road pools and surface drains within the actual town and regularly searched by a special man)	..	..	..	..	196	127	125	„
4.	Msimbazi Valley	..	..	..	..	227	93	80	„
5.	Town (casual finds by the Sectional Inspectors)	..	..	..	..	54	142	68	„
6.	Traps (January-June only)	..	..			45	34	22	„

ANALYSIS OF SOURCES OF MOSQUITO LARVÆ.

	DRAINS.									POOLS.								
	Anopheles.			Culex.			Stegomyia.			Anopheles.			Culex.			Stegomyia.		
	1921	1922	1923	1921	1922	1923	1921	1922	1923	1921	1922	1923	1921	1922	1923	1921	1922	1923
Gerezani .. ..	133	75	100	80	2	2	—	—	—	73	79	53	107	98	91	1	—	—
Msimbazi .. ..	156	80	61	30	7	4	—	—	—	71	13	19	28	19	32	—	8	—
Town (Special Searcher)	20	19	38	12	32	34	2	—	—	176	108	87	56	87	64	—	—	—
Street Gullies ..	—	—	—	234	155	138	—	—	—	—	—	—	—	—	—	—	—	—
Town (Sectional Inspectors)	17	17	28	91	139	176	2	2	—	37	103	40	57	132	87	16	3	4
Dockyard and Kurasini	102	41	50	76	21	12	2	—	—	—	99	121	—	65	14	—	1	—
TOTAL ..	428	233	277	523	356	366	6	2	—	357	402	320	248	401	288	17	12	4
Traps.. ..	45	34	22	258	136	127	152	51	51	—	—	—	—	—	—	—	—	—
Cesspits and Soakage Pits.	—	—	—	85	196	386	1	1	—	—	—	—	—	—	—	—	—	—
Tanks, Jars, Barrels	1	11	3	95	171	753	266	403	1,200	—	—	—	—	—	—	—	—	—
Wells .. ..	2	11	13	27	59	75	—	—	1	—	—	—	—	—	—	—	—	—
Rubbish .. ..	—	—	—	10	5	101	6	15	136	—	—	—	—	—	—	—	—	—
Holes in Trees ..	—	—	1	1	—	68	—	—	21	—	—	—	—	—	—	—	—	—
Dhows: Water Barrels	—	—	—	4	8	—	22	77	37	—	—	—	—	—	—	—	—	—
Crab Holes ..	—	—	—	—	—	—	91	136	—	—	—	—	—	—	—	—	—	—
TOTAL ..	48	56	39	480	575	1,510	538	683	1,446	—	—	—	—	—	—	—	—	—

The analysis of sources of mosquito larvæ shows how constant the various known breeding places have remained during the three years compared.

The serious rise in the numbers of *Culex* and *Stegomyia* larvæ found in tanks, jars and barrels (mainly in the native quarter) shows how important it is for a careful watch to be kept on such containers by means of regular inspections, and for the invocation of law against individuals who fail to take the necessary steps to prevent the finding of larvæ on their premises.

*Coconut Trees.*—One native has been employed from December in climbing coconut trees and searching for larvæ on the lines initiated by Dr. Haworth.

It has not been possible yet to identify the species obtained, but the number of trees from which larvæ were obtained is given below :—

	Jan.	Feb.	Mar.	April	May	June	July
No. of trees examined	Not recorded.						
Containing larvæ ..	Not recorded.						
	August.	Sept.	October.	November.	December.	Total.	
No. of trees examined	333	314	387	384	353	1,771	
Containing larvæ ..	50	73	87	83	78	371	

Thus 20.9 % trees examined contained mosquito larvæ.

The adult mosquitoes hatched out from these larvæ have been examined by Dr. Aders of Zanzibar, who has differentiated them as follows :—

<i>Stegomyiæ</i>	...	...	...	...	...	420 specimens.
<i>Culicidæ</i>	...	...	...	...	...	7 „
<i>Toxorhynchites</i>	...	...	...	...	...	2 „

The finder was trained by Dr. Haworth's special climber and has no interest in the larvæ found: he simply brings what he finds to the office, where the larvæ are hatched out in their original bottles and the adults pinned out.

*Tree Cutting.*—The following figures have been supplied by the courtesy of the Director of Agriculture showing the number of trees felled in the Township during the year (largely mango and coconut trees):—

Trees felled under supervision of Agricultural Department	...	1,056
Trees felled by order of District Town Planning and Building Committee to make room for the erection of new native houses		350
		<hr/>
Total	...	1,406
		<hr/>

This has improved the circulation of air in many areas wherein it was seriously impeded before.

*Traps.*—These have been discontinued since the end of June. Two complete years' records are now available for reference and it was not considered that the cost of upkeep and inspection of the 40 traps was justifiable any longer.

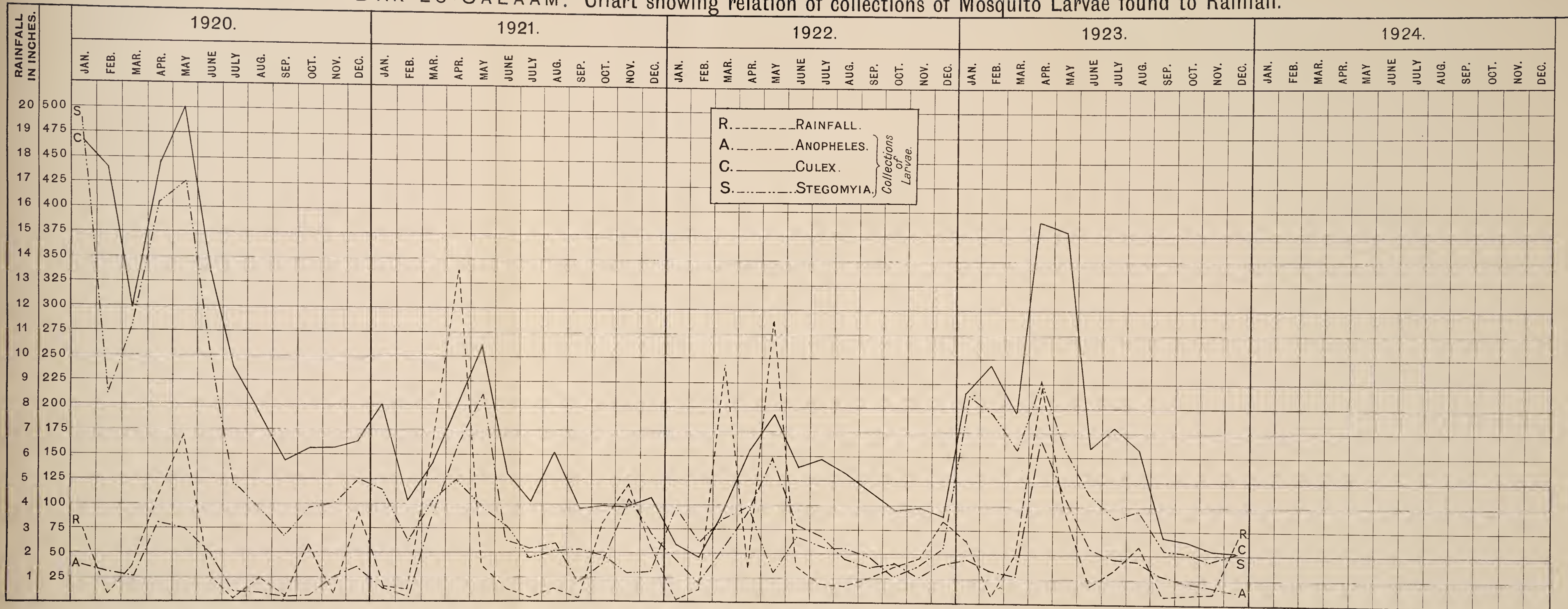
*Filling and Drainage.*—As stated above, little new work has been possible owing to lack of funds. Gerezeni has absorbed almost all labour which could be spared.

Figures have been recorded confirming the observations made in relation to the rise of water in Gerezeni creek at neap tides. This amounts to a difference of 18 inches between highest and lowest levels within the creek. Further filling work is urgently needed here to eliminate the most dangerous anopheline breeding ground within the town.

Dr. Nixon in his report for 1922, analysed the Malaria notifications and his results suggested that Gerezeni Creek was the main source of infection of Europeans and Asiatics.

The new masonry drain constructed in 1922 from Chafukoga to Bagamoyo pool has done much to reduce the mosquito breeding in that area. Branch drains are, however, required to feed this drain, since the existing earth drains are immediately choked with sand when heavy rain occurs.

# DAR-ES-SALAAM. Chart showing relation of collections of Mosquito Larvae found to Rainfall.

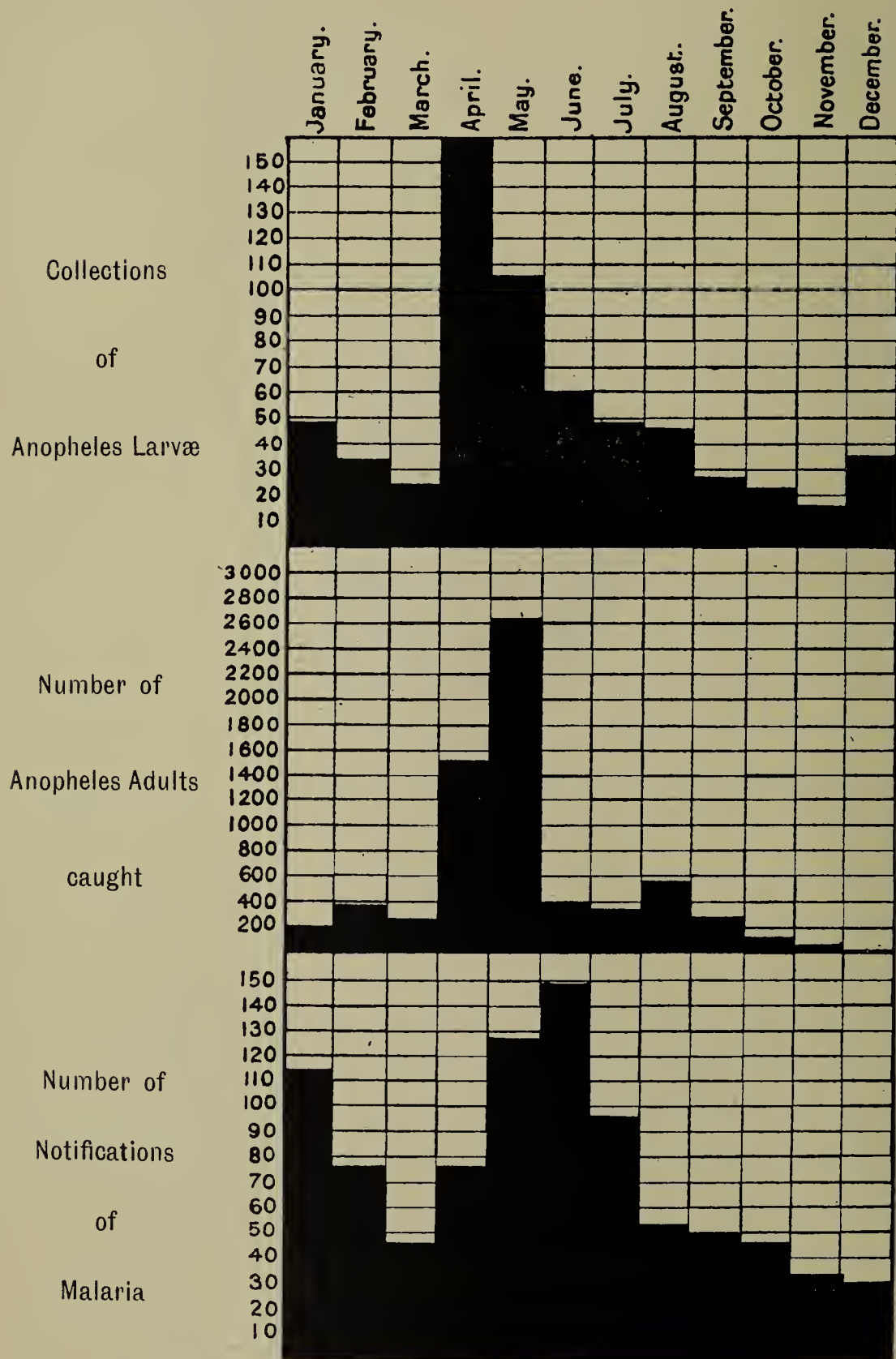






# CHART SHEWING RELATION OF CASES OF MALARIA

notified to larvæ and adults of Anopheles mosquitoes found.



Little has been done at Mkongeni owing to lack of labour. This area is heavily infested from Gerezani creek and from the six Kurasini creeks. Adult anophelines can be caught in the King's African Rifles lines or depot throughout the year.

*Malarial Infection.*—Notification has been continued throughout the year.

A total of 883 cases of Malaria and eight of Blackwater Fever were notified, of which 59.2 % were confirmed by blood examination. Such a result is gratifying to the Statistician for he knows that the figures are fairly reliable.

#### SUMMARY OF ANTI-MOSQUITO WORK DONE.

	1921	1922	1923
Collection of Larvæ found :—			
Anopheles .. .. .	902	690	636
Culex .. .. .	1,694	1,332	2,166
Stegomyia.. .. .	892	697	1,457
Adult Mosquitoes caught in houses :—	(7 months)		
Anopheles.. .. .	578	3,735	6,481
Culex.. .. .	—	41,620	4,377
Stegomyia.. .. .	—	64	43
Drains inspected, number .. .. .	80,506	69,005	71,096
„ oiled .. .. .	13,081	12,534	10,586
Cesspits and Soakage Pits inspected .. .. .	125,709	94,661	112,218
„ „ oiled .. .. .	15,849	9,104	4,139
Pools inspected .. .. .	17,181	23,375	23,712
„ oiled .. .. .	6,746	8,998	6,324
Wells inspected .. .. .	29,401	25,281	22,372
„ oiled .. .. .	5,679	7,203	4,377
Tanks, Jars and Barrels inspected.. .. .	306,462	279,414	255,755
„ „ „ oiled .. .. .	2,783	1,914	1,076
Ditches cleaned, miles .. .. .	239	371	441
„ dug, miles .. .. .	3	1.3	2.2
„ requiring regular cleaning, miles .. .. .	21.5	22	—
Pits, excavations and depressions filled, approximately, cubic yards .. .. .	5,302	598,122	6,400
Mosquito notices served .. .. .	135	12	210
Prosecutions for Mosquito Larvæ .. .. .	—	—	10

A graphic comparison of Malaria notifications with finds of anopheline larvæ and anopheline adult catches in houses shows the three curves in close correlation; that of Malaria, following shortly after those of larvæ and adults. This is only to be expected, but it again shows that the figures are to some extent reliable.

The three sets of figures are tabulated for comparison :—

	Notification of Malaria.	Anopheline Larvæ found.	Adult Anophelines caught in houses.
January.. .. .	113	48	216
February .. .. .	76	36	283
March .. .. .	44	26	234
April .. .. .	74	166	1,589
May .. .. .	127	105	2,649
June .. .. .	147	59	324
July .. .. .	95	48	323
August .. .. .	52	46	510
September .. .. .	50	29	229
October.. .. .	44	23	99
November .. .. .	31	16	25
December .. .. .	30	34	Nil.
	883	636	6,481

*Filaria*s.—This disease, which causes so much loss of time and efficiency among the native population, is combated by diligent searching of all native houses for breeding places of mosquitoes. See Table IV. (11).

*Dengue*.—A few cases of this disease which is rarely diagnosed in Dar-es-Salaam have been reported.

*Other Insect-borne Diseases*.—It may be mentioned in passing that nine tsetse flies were caught on the outskirts of the town in July and kindly identified by the Game Warden as: *G. Morsitans*; *G. Bievipalpis*; *G. Pallidipes*.

These were all single specimens and were probably brought from the bush by cattle, although the places in which they were found were said to be suitable breeding places.

*Plague*.—No cases occurred. The rat situation was fully analysed by Dr. Nixon in the report for 1922. The number of rats caught has increased considerably:—

Year.	Total Rats caught.	Average No. of Catchers employed.	Average Rats per Catcher.
1921 .. .. .	3,421	2	1,710
1922 .. .. .	4,355	2½	1,742
1923 .. .. .	10,851	3	3,283

*Relapsing Fever*.—Seven cases have been notified, several of which appeared to have resided in the town for some months. Not a single tick (*ornithodorus*) has been found in any of the houses of the infected persons.

#### EPIDEMIC DISEASE.

*General*.—(See Table VI.) for admissions to Infectious Diseases Hospital.

No epidemic occurred.

Only one case of dangerous infective disease occurred which was fatal: the infected individual was a King's African Rifles soldier who died from cerebro spinal meningitis almost immediately after admission to the Sewa Hadji Hospital. His wife was placed under observation in the Infectious Diseases Hospital, but did not contract the disease.

The following table shews the notifications of infectious diseases received:—

STATEMENT OF INFECTIOUS DISEASES NOTIFIED IN DAR-ES-SALAAM DURING 1923.

Disease.	Reported by S.M.O., European Hosp.	Reported by M.O., Sewa Hadji Hosp.	Reported by Private Practitioners.	Reported by Medical Officer of Health.	TOTAL.
Chicken-pox ..	—	2	2	25	29
Fever, Enteric Group	9	3	—	—	12
„ Relapsing ..	5	—	2	—	7
Influenza .. ..	7	62	—	—	69
Leprosy .. ..	—	—	—	11	11
Measles .. ..	2	—	3	1	6
Mumps .. ..	—	3	—	11	14
Yaws .. ..	—	123	—	—	123
Tuberculosis ..	4	2	2	1	9
TOTAL ..	27	195	9	49	280

Tuberculosis was made notifiable on 14th June, 1923; this is a most welcome addition to the list of notifiable diseases. As will be seen, nine cases of tuberculosis were notified, all being infections of the lungs or larynx and therefore open cases. Only one case of bone Tuberculosis occurred, in which both spine and larynx were implicated.

There were 20 deaths from the disease. All certified except three (*see* Table of Deaths): giving a percentage of total deaths of 6.1 %.

*Fly-borne Intestinal Disease.*—Only one death from Dysentery was notified (variety not stated): there were no deaths from the Enteric group.

*Small-pox.*—No case occurred.

Vaccinations performed:—

1921	...	...	...	...	...	...	...	2,683
1922	...	...	...	...	...	...	...	398
1923	...	...	...	...	...	...	...	817

The majority of those vaccinated were passengers from ships and dhows from infected ports and were not seen on a second occasion. No extensive vaccination of the general population was carried out.

*Leprosy.*—Treatment of three of the adult cases of Leprosy which was commenced through the kindness of the Director of the Wellcome Bureau of Scientific Research, who provided the early supplies of ethyl esters of chaulmoogra, at the Infectious Diseases Hospital in 1921, has been continued. A dosage of 4 c.c. of "Moogrol" has now been reached: it is given weekly by intravenous injection and no ill effects have been seen. None of these cases are cured, but they were all somewhat advanced on admission, two being nodular and one nervous. One case shows considerable improvement.

But one case, a member of the Health Office staff, who was diagnosed very early and was discharged apparently cured in 1922 is back at work, and no signs of the disease have reappeared. The nodules which appeared on his face are indistinguishable from normal skin now.

An early case in a King's African Rifles askari admitted in 1923 shows marked improvement. His lesions consisted of small patches resembling ringworm on the lower lip and thigh about the size of a florin, and a line of similar roughened skin extending from above the left elbow well down the forearm, and accompanied by great irritation and loss of power and wasting of the muscles of the hand.

This case shows marked improvement.

Another case, diagnosed about six months after the disease was first noticed by the patient, who was one of the mosquito clerks at the Health Office, and unfortunately attempted to conceal the nature of his disease, was admitted in 1923 and shows some improvement.

Local injection of .1 c.c. of Moogrol into nodules has caused the nodule to become almost obliterated without suppuration in two different persons. No record was kept of the number of nodules so injected.

*Leper Settlement at Nunge.*—This was fully described in Dr. Nixon's report for 1922.

A small hospital for cases requiring much attention, a store for food, headman's house and one four-roomed house have been built during the year.

One dresser only is employed and rations and blankets are supplied from the Health Office. Four healthy children, one or both of whose parents were affected, have been removed from the settlement, and after examination which included taking a nasal smear, which was found to be negative, were placed under charge of the Roman Catholic Mission which kindly undertook to look after them.

STATEMENT OF LEPERS AT NUNGE LEPER SETTLEMENT FOR THE YEAR ENDING  
31ST DECEMBER, 1923.

SEX.	Total at year ending 31.12.22.	Total admissions during the year 1923.	Total.	No. of Discharged	Total No. Absconded	Total No. Died	Total.	Total at year ending 31.12.23.
Male Adults .. ..	41	2	43	—	4	3	7	36
„ Children .. ..	4	—	4	1	—	—	1	3
Female Adults .. ..	36	2	38	—	2	1	3	35
„ Children .. ..	5	1	6	3	—	—	3	3
TOTALS .. ..	86	5	91	4	6	4	14	77

*Yaws*.—123 cases were notified.

*Helminthic Disease—Ankylostomiasis*.—This disease is known to be very prevalent, though no estimation of the number of the population infected by the worm or affected by its results has been attempted. The privy pits in the actual town being satisfactory on the whole, there appears to be much more evidence of the disease in natives from the district, where frequently no attempt is made to dig a privy.

Forty-three deaths (13.2 %) were attributed directly to the disease, of these, fifteen were certified deaths.

*Teniasis*.—All meat slaughtered in the town is inspected by the European Stock Inspector. Meat heavily infested is destroyed; meat mildly infested is boiled under supervision and sold outside the township. No infested meat is sold in the market.

*Bilharziasis*.—No investigation of the source of infection or prevalence of this disease has been carried out.

### (iii).—GENERAL MEASURES.

#### SEWERAGE DISPOSAL.

The sewer outlets on the foreshore have been reconstructed at an estimated cost of £1,400.

This has made an immense improvement in the sanitary condition of the beach: two more outlets still remain to be dealt with: that conveying the whole of the waste water, from the Railway area, and the Police Barracks drain which is under reconstruction at the time of writing.

The whole of the Police Barracks drainage is under reconstruction on modern lines, and is being made to discharge into a septic tank near the Sewa Hadji Hospital, the drainage from which it will eventually take also. The liquefied effluent from this tank will then discharge by the old outlet into the harbour. The old drain from the barracks will then take surface water only.

The new latrines at the market and Government Press are on the trough system and flushed by automatic tanks, the sewage passing into porous cesspits.

Servants' latrines (water-flushed oriental type) are being provided for all new residences, while many existing buildings have been provided with improved sanitary accommodation during the year. The latrine accommodation at the King's African Rifles lines still requires improvement, though that at the depot was much improved during 1922.

The need for a definite sewerage scheme for the town, if only a scheme towards which to aim, and in conformity with which new drainage plans for premises would be drawn up, remains pressing.

It would appear to be a mistake to perpetuate the cesspit system indefinitely as we are doing at present, with its inevitable expense, odours, and mosquito breeding.

It is hoped that the Public Works Department will give serious consideration to this matter in the near future, for it is certain that health and comfort will increase in direct proportion to the reduction which can be effected in the number of cesspits and soakage pits.

## DISPOSAL OF REFUSE.

25,201 ox cartloads of refuse were received at the open incinerators in various parts of the town.

The depression known as "Chafukoga" has now been completely filled with ash from the destruction of refuse, and is no longer a danger from mosquito breeding. The new masonry drain constructed therefrom to the Bagamoyo pool carries off a great deal of the rain water which formerly lay about in this area, so that the necessity for further filling no longer exists.

It was therefore thought desirable to remove the greater number of incinerators to a swamp further up the hill in the native town, and such removal was actually undertaken. But it entails a further distance of half a mile as the crow flies, for the slow-moving ox carts to traverse unmade sandy roads: so at the first heavy rain it was found that the refuse arrived in such a wet state that it accumulated faster than it could be burned, and a number of incinerators had to be reconstructed at the old burning station near the centre of the town.

The difficulty of preventing fly-breeding at the incinerators during the wet season has been referred to before. (See 1921 Report, p. 146). The question of utilising the heat generated by all this refuse was carefully examined by the Chief Engineer, Electricity Department, and as a result of the analysis of a normal week-day's refuse, the following figures were obtained:—

Class of Refuse.	Total Lbs.	Percentage of Total.
Charcoal .. .. .	56	·18
Stones .. .. .	277	·87
Bottles and Glass .. .. .	300	·94
Tins, &c. .. .. .	531	1·67
Broken Crockery, &c. .. .. .	211	·66
Coconut Husks .. .. .	393	1·24
Grass, Paper, Straw and Vegetable Refuse	9,670	30·41
Sticks, &c. .. .. .	56	·18
Bones .. .. .	156	·49
Rags .. .. .	565	1·78
Manure .. .. .	1,607	5·06
Dust, Ashes and Sand .. .. .	17,974	56·52
Totals .. .. .	31,796	100·00
Total Combustible Material .. .. .	.. .. .	39·34 %
Total Non-combustible Material .. .. .	.. .. .	60·66 %
		100·00 %

The total capacity of the open sleeper incinerators in use was approximately 1,085 cubic feet.

The Chief Engineer reported as follows:—

"It would appear that the total refuse is only about capable of burning itself owing to the high percentage of non-combustible material.

"2. The quantities are not sufficient to justify this Department in taking over the destruction of the refuse as it is considered that the only way to deal with the matter would be to have refuse sorted daily and combustible refuse consumed, and non-combustible buried in land or dumped at sea: the combustible refuse is only equal to 30 cwt. of coal.

"3. If the above method was adopted by your Department, a single-unit self-contained Horsfall destructor would deal with the combustible refuse, that is, with about 25 square feet Grate area.

ELECTRICITY DEPARTMENT,  
3rd July, 1923.

"(Sgd.) L. H. KING,  
"Chief Engineer and Manager."

In view, therefore, of the difficulty of dealing with the refuse during rainy weather, and the increase in fly-breeding at that season, together with the smoke and smell caused by the slow combustion of the refuse in the incinerators used at present, it would appear desirable to consider the installation of a real destructor of the Horsfall type.

#### COLLECTION OF REFUSE.

The slow-moving ox carts have already been referred to. An average of 14 such carts were on the road during the year, worked by 40 natives at a cost in salaries alone of £528. The food supplied to the oxen to supplement the grazing cost £14.

It is thought that it would be more economical, and certainly more satisfactory, to employ motor transport for the long distance runs, especially in the residential area. Whether motor transport would be equally economical for short runs between groups of houses in the native quarter would require careful investigation, but some system of collecting stations might be adopted, wherein the refuse would be conveyed by hand or ox cart to the sub-station, and thence by motor transport to the central disposal station.

It is the writer's considered opinion that it is neither economical nor efficient to use ox cart transport for refuse when the disposal station is at a distance from the main collecting areas.

For the same reasons motor transport is replacing horse-drawn vehicles for the collection of refuse in English towns.

The question is capable of decision as a result of experiment, and would appear to be worth trial.

#### WATER SUPPLY.

Marked improvement can be reported in the quantity, continuity and quality of the water supply in the Residential area.

The new mains have been extended through the Commercial and Residential area, while a 4-inch main has been laid from the boreholes at Kurasini to the high level tanks at Gerezani.

The Brewery borehole water has been replaced by the combined Kurasini—Gerezani water at the furthest part of the Residential area, and many other buildings have been connected to this supply to the satisfaction of the occupants.

Further boring operations and the replacement of some of the pumps during the coming year are expected to yield a much larger supply of water, which will enable many more buildings to be supplied from the main, and so allow the closure of many more wells.

The boreholes at the New Market (formerly the Carrier Corps) have been reopened and new tanks erected thereat. This supply, though somewhat saline, furnishes a sufficiency of water for the supply of the abattoir, Government School, and nightly flushing of the New Market. It is expected also to supply the new Railway Asiatic quarters erected in the vicinity.

The reduction in price of water sold to the public from Government standpipes from about three farthings to one farthing per four-gallon tin is a popular achievement.

The progress made by the Public Works Department in the improvement of the water supply is a matter for congratulation.

It is to be hoped that the quantity of borehole water available will come up to expectations: if it does not, there are still 150,000 gallons of spring water running to waste in Gerezani creek every day.

#### CLEARANCE OF BUSH, UNDERGROWTH, ETC.

This work is carried on continuously so far as labour is available. The sides of all the surface drains in the various swamps are continually cleared of grass to a distance of 3 to 6 feet on either side. 26.9 acres have been recorded as cleared in this way. No record is kept of the areas cut along the broad roadsides, open spaces, and sea front.

STATISTICS.

Such figures as are available are given in Table III. (p. 65).

No census of the population has been taken since 1921 and it is useless therefore to base any calculations on the figures for that year, since the total population in each class of the community is so small and variable. Constant rates of increase of population cannot be presumed for the estimation of the population by formulæ, since the normal rates of increase from year to year have not yet been established.

No registration of Asiatic or African births has yet been made compulsory, and this deprives us of a further means of estimating the population.

The number of deaths notified shows a considerable rise above the numbers recorded for 1921 and 1922, the difference occurring among the Africans, whose total for 1923 exceeded that of 1922 by 54 deaths.

				Year.		
				1921.	1922.	1923.
Total deaths	...	...		229	239	325

Of the total recorded, 39.3 % were notified deaths, *i.e.*, the individual was seen by a Medical practitioner before death or the cause of death diagnosed by post-mortem. The remainder were diagnosed after inspection of the corpse as has been described in previous reports.

The four most frequent causes of death (certified and notified together) are :—

Pneumonia (all varieties)	...	55	(of which 19 were certified).
Ankylostomiasis	... ..	43	(of which 15 were certified).
Malaria	... ..	34	(10 certified).
Old age and natural causes		22	(none certified).

But of 19 deaths from Pulmonary Tuberculosis 16 were certified showing the importance of this disease to the community.

No other cause of death calls for comment.

Examination of the monthly deaths throughout the year shows a maximum of 38 deaths in August and a minimum of 18 in January, the mean monthly rate being 27.

TABLE OF DEATHS NOTIFIED.

Diseases.	EURO- PEAN.	ASIATIC.		AFRICAN.		TOTAL.
	Certified	Certified	Notified	Certified	Notified	
<i>Infective Diseases—</i>						
Chicken Pox .. .. .	—	—	—	—	—	—
Dysentery .. .. .	I	—	—	—	—	I
Erysipelas .. .. .	—	2	—	—	—	2
Gonorrhœa .. .. .	—	—	—	—	—	—
Influenza .. .. .	—	I	—	—	—	I
Leprosy .. .. .	—	—	—	2* §	—	2
Malaria .. .. .	I†	5	2	4	22	34
Blackwater Fever.. ..	I†	I	—	—	—	2
Meningitis—Cerebro-spinal (confirmed bacteriologically) .. ..	—	—	—	I	—	I
Pneumonia—Lobar .. .. .	—	4	—	4	I	9
—Lobular .. .. .	—	7	—	2	4	13
—Undifferentiated .. ..	—	I	—	I	31	33
Pyrexia of unknown origin .. ..	I	—	—	—	19	20
Hyper-pyrexia .. .. .	I	—	—	—	—	I
Pyæmia .. .. .	—	—	—	I	—	I
Septicæmia, Puerperal .. ..	—	4	—	—	—	4
Tuberculosis—Spine and Larynx ..	—	I	—	—	—	I
—Lungs .. .. .	—	5	—	11	3	19
Yaws .. .. .	—	—	—	I	—	I
<i>Local Diseases—</i>						
Nervous System :—						
Cerebral Hæmorrhage .. ..	—	I	—	—	—	I
Convulsions .. .. .	I	2	4	—	—	7
Paralysis Agitans .. .. .	—	—	—	I	—	I
Epilepsy .. .. .	—	—	I	I	I	3
Meningitis (cause not stated) .. ..	—	I	—	—	—	I
" Tuberculous .. .. .	—	I	—	—	—	I
Imbecility .. .. .	—	—	—	I	—	I
Ear :—						
Otitis Media Suppurativa .. ..	—	—	—	I	—	I
<i>Circulatory System—</i>						
Pernicious Anæmia .. .. .	—	I	—	—	—	I
Endocarditis (chronic) (including deaths certified " V.D.H." and Heart Disease)	—	—	—	2	3	5
Pericarditis .. .. .	—	—	—	I	—	I
Syncope .. .. .	—	—	—	2	2	4
<i>Respiratory System—</i>						
Bronchitis—Acute .. .. .	—	4	2	—	4	10
—Chronic .. .. .	I	—	—	—	15	16
Oedema of Lungs .. .. .	—	I	—	—	—	I
Pleurisy .. .. .	—	—	—	I	—	I
Undifferentiated " Chest Disease " ..	—	—	—	—	10	10
Carried forward .. .. .	7	42	9	37	115	210

† Case died on board ship while proceeding from  
Lindi to Dar-es-Salaam.

‡ From Morogoro District.

\* Complicated by Tuberculosis of Lungs.

§ Complicated by Ankylostomiasis.

TABLE OF DEATHS NOTIFIED—*continued.*

Diseases.	EURO- PEAN.	ASIATIC.		AFRICAN.		TOTAL.
		Certified	Notified	Certified	Notified	
Brought forward.. ..	7	42	9	37	115	210
<i>Digestive System—</i>						
Ascites .. .. .	—	—	—	—	1	1
Intestinal Obstruction .. .. .	1*	—	—	—	2	3
Enteritis .. .. .	—	2	1	—	4	7
Jaundice of the newly-born .. .. .	—	1	—	—	—	1
Nutrition and Metabolism :—						
Diabetes Mellitus .. .. .	—	1	—	—	—	1
Inanition .. .. .	—	2	1	—	2	5
<i>Urinary System—</i>						
Nephritis—Acute .. .. .	—	3	—	—	—	3
—Chronic .. .. .	—	1	—	—	1	2
Cystitis (Gonorrhœal) .. .. .	—	—	—	1	—	1
<i>Generative System—</i>						
Pregnancy :—						
Abortion .. .. .	—	1	—	—	1	2
Parturition .. .. .	—	2	1	—	—	3
Premature Birth .. .. .	—	—	1	—	—	1
Stillbirth .. .. .	—	—	4	—	—	4
Asphyxia Neonatorum .. .. .	—	—	2	—	—	2
Urethral Stricture .. .. .	—	—	—	1	—	1
Periurethral Abscess .. .. .	—	—	—	1	—	1
Elephantiasis of Scrotum (operation) ..	—	—	—	1	—	1
<i>Organs of Locomotion—</i>						
Cellulitis of Leg .. .. .	—	—	—	1	—	1
<i>Injuries—</i>						
General :—						
Burns .. .. .	—	1	—	—	—	1
Scalds .. .. .	—	—	—	1	—	1
Local :—						
Fractured Spine .. .. .	—	—	—	1	—	1
Wound of Skull .. .. .	—	—	—	1	—	1
Suicide by Hanging .. .. .	—	—	—	1	—	1
Cut Throat .. .. .	—	—	—	1	—	1
Crocodile Bite .. .. .	—	—	—	1	—	1
<i>Malformations</i> .. .. .	—	—	1	—	—	1
<i>Animal Parasites—</i>						
Neurata :—						
Ankylostomiasis .. .. .	—	—	1	15	27	43
Filariasis .. .. .	—	—	—	1	1	2
<i>Old Age and Natural Causes</i> .. .. .	—	—	2	—	20	22
TOTAL .. .. .	8	56	23	64	174	325

\* Brought in from Morogoro District.

TABLE SHOWING INCIDENCE OF DEATHS OCCURRING IN DAR-ES-SALAAM  
TOWNSHIP DURING 1923.

Adults over 12.      Children under 12.

Month.	EUROPEAN.				ASIATIC.				AFRICAN.				TOTAL.
	Adults.		Children.		Adults.		Children.		Adults.		Children.		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
January .. ..	1	—	—	1	—	—	3	1	5	4	—	3	18
February .. ..	—	—	—	—	1	1	—	1	11	4	5	—	23
March .. ..	—	—	—	—	—	2	—	1	13	6	2	3	27
April .. ..	—	—	—	—	1	2	—	3	11	7	—	1	25
May .. ..	—	—	—	—	2	—	1	3	10	3	—	2	21
June .. ..	1	—	—	—	3	2	2	4	8	7	1	2	30
July .. ..	2	—	—	—	—	3	1	1	12	8	—	—	27
August .. ..	1	—	1	—	4	4	3	4	11	7	1	2	38
September ..	—	—	—	—	3	1	7	1	9	8	2	1	32
October .. ..	—	—	—	—	1	—	1	2	10	10	2	1	27
November.. ..	—	—	—	—	1	1	—	2	9	13	—	1	27
December ..	1	—	—	—	2	2	1	1	8	9	5	1	30
TOTAL ..	6	—	1	1	18	18	19	24	117	86	18	17	325
TOTAL 8.				TOTAL 79.				TOTAL 237.					

The importance of more frequent census taking in the township is therefore urged, since without statistics it is impossible accurately to gauge the degree of improvement or otherwise which has taken place in the health of the inhabitants.

At the same time the need for the compulsory registration of Asiatic and African births is again mentioned, for the reasons explained at length in the 1921 Report.

*Food Supply.*—The removal of the market to the capacious new building formerly known as the Carrier Corps took place in August. This constitutes an important step forward in the improvement of the conditions under which the public food supply is conducted.

This lofty building measures 67 yards by 43 yards: its concrete floor slopes from the centre towards the sides, whence the drainage is carried off to porous cesspits.

An ample water supply is available, the whole market being flushed nightly by means of flexible hoses.

The building is lighted by electricity and is open till 8 p.m.

Water-flushed latrines, draining to a porous cesspit, have been provided for all classes.

The old market buildings are now used by sellers of foodstuffs, which are ready for consumption, such as fried fish, cakes, tea and coffee. This has eliminated the hawkers from the street corners, while all other fresh produce is sold at the New Market, doing away with the objectionable small fruit shops referred to in 1921.

Funds are available for the removal in the near future of the dried fish and shark market to a site near the new market; this will abolish another most objectionable feature from the commercial area.

*Milk Supply.*—Proceedings were instituted in 5 cases for the sale of milk contrary to paragraph 35 of Township Rules, 1923.

Convictions for selling milk which failed to reach the standard required were obtained in all cases.

*Samples to Laboratory.*—17 samples were sent to the Laboratory for examination :—

5	Samples of Soda Water.
7	„ „ Water.
5	„ „ Milk.

#### HOUSING AND TOWN PLANNING.

The building of additional quarters for Government Officials has relieved the congestion to some extent, but a large number of quarters are still rented from private firms and individuals for the housing of officials, while rents remain high.

#### PRIVATE BUILDING.

This is controlled by the Township Rules, 1923, which incorporated the Building Rules, 1922.

All plans for new buildings and structural alterations are considered by the Township Authority at their weekly meeting.

A summary of the work performed by the Township Authority from April 1st, the date of coming into operation of the Township Rules, 1923, to 31st December is given :—

No. of premises in respect of which written applications for new building, structural alterations or repairs were received .. .. .	499
No. of plans approved .. .. .	37
No. of minor applications for repairs and alterations .. .. .	858
No. of applications for permission to construct new privy pits .. .. .	380
No. of new building plots issued .. .. .	335
No. of applications for permission to cut coconut trees .. .. .	206
No. of notices served to demolish dilapidated houses .. .. .	12
No. of notices served to abate nuisances .. .. .	5
No. of notices served calling attention to work done in excess of, or at variance with, permission given by the Township Authority .. .. .	32
No. of ordinary meetings of Township Authority .. .. .	35
No. of extraordinary meetings of Township Authority .. .. .	9
No. of meetings of District Town Planning and Building Committee .. .. .	5

#### EXTENSION OF THE NATIVE QUARTER.

Simultaneously with the opening of the new market in August, a large number of building plots for native houses, which had been surveyed and demarcated by the Land and Survey Department on the vacant land lying between the New Market and the cliffs of the Msimbazi valley, became available.

These, to the extent of 335, were quickly taken up by natives who had, in some cases, been waiting for a very long time, and the construction of native houses of a uniform size and good quality was rapidly undertaken, many houses having reached a habitable state before the end of the year.

The plots measure sixty feet in depth by forty-five feet frontage on the street, and a house of a maximum size of forty feet by thirty may be erected thereon, thus leaving half the plot unbuilt upon.

Every house is thus separated from its neighbour by a space of fifteen feet, which allows for light, ventilation and fire protection.

The houses are constructed almost without exception of wattle and daub, and roofed with coconut leaves: they usually consist of five rooms, divided by a central passage and a front verandah. A kitchen, privy and enclosure for bathing are built in opposite corners of the back yard, and an airy, cool and sanitary native dwelling results.

It is expected that much relief of the congestion in the commercial area will result from this extension of the native quarter by enabling the Government to evict the owners from some of the dilapidated huts situated on Government land bordering on the Residential and Commercial areas, a course which has been hitherto impossible owing to the shortage of plots for native building.

#### SURVEY OF NATIVE TOWN.

Great progress has been made by the Land and Survey Department in the survey of the native town of which no accurate plan existed previously.

The survey shows how much can be done to economise space in the different blocks of houses by a new lay-out of existing plots and boundaries.

#### MEDICAL INSPECTION OF SCHOOL CHILDREN.

A native dresser attends the Government School daily and treats minor ailments. The Medical Officer of Health attends weekly to see more serious cases.

It is regretted that it has not been possible to give so much attention to this branch of the work as was done formerly.

The diseases treated (as diagnosed by the dresser) are summarized below :—

Ulcers .. .. .	615 cases.
Cough .. .. .	174 ..
Pain (situation not stated : includes bruises and minor injuries at football) .. .. .	165 ..
Headache and Fever .. .. .	134 ..
Colic .. .. .	94 ..
Ringworm .. .. .	70 ..
Scabies .. .. .	63 ..
'Mba' ( <i>tinea corporis</i> ) .. .. .	48 ..
Constipation .. .. .	27 ..
Boils .. .. .	16 ..
Earache .. .. .	13 ..
Diarrhoea .. .. .	11 ..
Yaws .. .. .	10 ..
Impetigo .. .. .	3 ..

41 Children were admitted to Hospital.

#### PORT HEALTH.

Ships cleared ... .. .	303
Dhows cleared ... .. .	824

No cases of Infectious disease were found on vessels arriving in the harbour.

The S.S. "Karagola" worked in quarantine in April.

Cases of Small-pox occurred on the following vessels from India and were quarantined at Zanzibar :—

"Karagola" ... .. .	During May.
"Khandalla" ... .. .	,, December.

Cases of Plague occurred on board S.S. "General Duchesne" from Madagascar for Marseilles during December. The disease had not been diagnosed when the steamer arrived in the outer harbour, and it was not diagnosed until its arrival at Mombasa, where four members of the crew were landed and found to be suffering from bubonic plague.

No passengers were disembarked at this Port which thus luckily escaped infection.

#### TUITION OF NATIVE SANITARY INSPECTORS.

This work is being carried on continuously : no examination was held during the year, but a more comprehensive course of instruction, embracing a little elementary teaching in physiology, chemistry and physics has been prepared ; only such matters being touched upon as a Sanitary Inspector is likely to meet with in the course of his work.

Four new probationary Inspectors were appointed during the year.

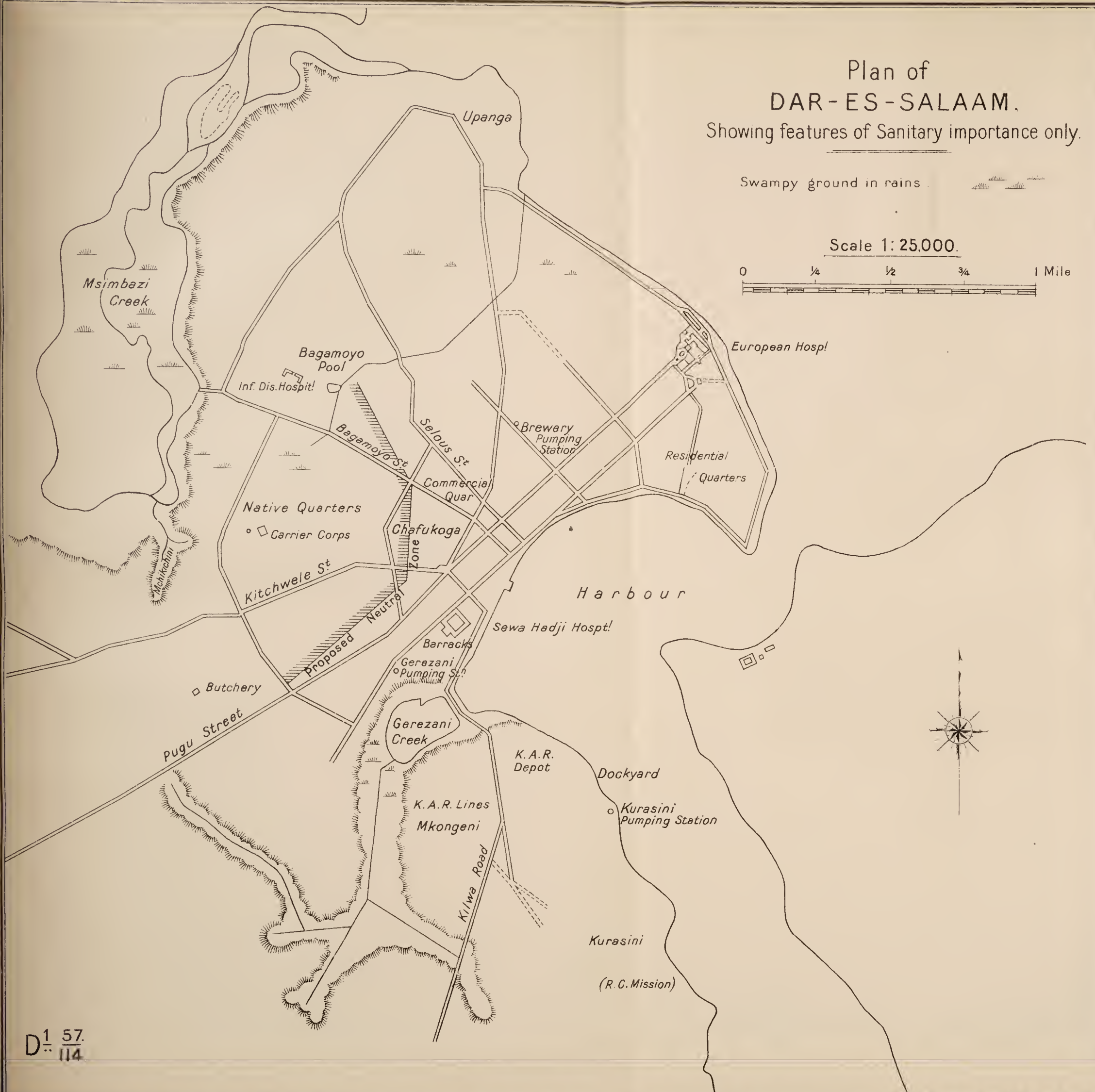
The results of the training given hitherto are distinctly promising.

# Plan of DAR-ES-SALAAM, Showing features of Sanitary importance only.

Swampy ground in rains

Scale 1: 25,000.

0 1/4 1/2 3/4 1 Mile



D<sup>1</sup> 57.  
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TABLE II.  
FINANCIAL.

REVENUE AND EXPENDITURE FOR 1923.

Fees received by Port Office for Bills of Health .. .. .	Shs.	2,336.00
Fees received for cesspit emptying—Reimbursement and Miscellaneous and Conservancy and Water Rates .. .. .	„	2,327.20
Over payments recovered .. .. .	„	174.36
Sale of Departmental Stores .. .. .	„	40.35
Reimbursement and Miscellaneous .. .. .	„	108.00
Total Revenue .. .. .	Shs.	<u>4,985.91</u>

EXPENDITURE.

OFFICE AND ADMINISTRATION.

Medical Officer of Health .. .. .	Shs.	16,068.53
Sanitary Superintendent, 1st Grade .. .. .	„	9,356.64
Sanitary Superintendents, 2nd Grade .. .. .	„	9,954.07
Temporary Sanitary Superintendent .. .. .	„	5,062.39
Native Sanitary Inspectors .. .. .	„	8,007.58
Asiatic Clerk .. .. .	„	1,794.30
Two Native Clerks .. .. .	„	2,740.00
Office Boys .. .. .	„	1,712.29
Two Artisans (Native) .. .. .	„	1,366.89
Yard and Motor Boys .. .. .	„	1,264.76
		<u>57,327.45</u>

QUARANTINE AND I.D.H. AND LEPER SETTLEMENT.

Sub-Assistant Surgeon .. .. .	Shs.	4,355.18
Boat Boys .. .. .	„	1,226.76
I.D.H. Labour .. .. .	„	2,094.45
Hospital Attendants .. .. .	„	881.56
Vaccinators .. .. .	„	1,313.43
Rat Catchers .. .. .	„	1,207.27
Headmen and Dresser for Nunge .. .. .	„	425.00
Food for I.D.H. and Leper Settlement .. .. .	„	5,275.54
		<u>16,779.19</u>

ANTI-MOSQUITO MEASURES.

Sanitary Inspector D'Souza .. .. .	Shs.	6,000.00
Mosquito Clerks, Finders and Oilers .. .. .	„	10,162.28
Mosquito Drainers (permanent) .. .. .	„	21,267.95
		<u>37,430.23</u>

General Duty .. .. .	Shs.	14,833.98
Cemetery Boys .. .. .	„	1,658.23
Hedge Cutters .. .. .	„	2,473.13
		<u>18,965.34</u>

LATRINE AND MARKET SWEEPERS.

Latrine Sweepers .. .. .	Shs.	4,426.43
Market Sweepers .. .. .	„	2,008.34
New Market Sweepers .. .. .	„	200.00
		<u>6,634.77</u>

REFUSE DISPOSAL.

Dump Boys .. .. .	Shs.	5,168.81
Ox Cart Boys .. .. .	„	10,566.66
		<u>15,735.47</u>

CESSPIT EMPTYING.

Pump Boys .. .. .	Shs.	1,238.03
Cost of two Daimler 2-ton lorries (approximately) .. .. .	„	11,160.00
		<u>12,398.03</u>

ROAD SWEEPING.

Residential Area .. .. .	Shs.	4,254.00
Commercial Area .. .. .	„	3,499.86
Native Quarter .. .. .	„	2,210.90
		<u>9,964.76</u>

Total Expenditure .. .. .	Shs.	<u>175,235.24</u>
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## SUMMARY OF EXPENDITURE INCURRED BY HEALTH OFFICE DURING THE YEAR 1923.

Head.	Sub-Head.	Unit.	Amount.
			Shs.
XIII.—Medical and Sanitary	7 Medical Officers .. ..	M.O.H. .. ..	16,068.53
" "	18 European San. Supdt. ..	San. Supdts. and Store-keeper .. ..	24,373.10
" "	24 Sub-Assist. Surgeon ..	J. W. Comfort and M. P. Dane .. ..	2,555.18
" "	25 Compounder .. ..	A. S. Khan .. ..	1,800.00
" "	27 N.S. Inspectors .. ..	S.I. D'Souza .. ..	6,000.00
" "	28 Vaccinators .. ..	N.S. Inspectors .. ..	8,007.58
" "	29 Hospital Attendants .. ..	N. Vaccinators .. ..	1,313.43
" "	30 Asiatic Clerks .. ..	I.D.H. Nurses .. ..	362.85
" "	31 Native " .. ..	Clerk, Nanayakkara ..	1,794.30
" "	33 Sanitary Labour .. ..	{ Tom Harawa } ..	2,740.00
" "	" " .. ..	{ G. Kasembe } ..	4,426.43
" "	" " .. ..	Latrine Sweepers ..	1,712.29
" "	" " .. ..	Office Boys .. ..	5,168.81
" "	" " .. ..	Town Dump .. ..	2,502.79
" "	" " .. ..	Yard and Motor Boys ..	1,366.89
" "	" " .. ..	Fundis .. ..	4,254.00
" "	" " .. ..	Road Sweepers, No. I. ..	3,499.86
" "	" " .. ..	" " II. ..	2,210.90
" "	" " .. ..	" " III. ..	2,473.13
" "	" " .. ..	Hedge Cutters .. ..	10,566.66
" "	" " .. ..	Ox Cart Boys .. ..	14,833.98
" "	" " .. ..	General Duty .. ..	10,162.28
" "	" " .. ..	Mosquito Brigade .. ..	21,267.95
" "	" " .. ..	Drainers .. ..	1,207.27
" "	" " .. ..	Rat Boys .. ..	1,658.23
" "	" " .. ..	Cemetery Boys .. ..	200.00
" "	" " .. ..	New Market Boys .. ..	1,226.76
" "	40 Upkeep of Q. and I.D.H. ..	Motor Boat Boys .. ..	2,094.45
" "	" " .. ..	I.D.H. Boys .. ..	518.71
" "	" " .. ..	I.D.H. Nurses .. ..	90.00
" "	" " .. ..	2 Headmen, Nunge ..	1,744.55
" "	" " .. ..	Food for I.D.H. .. ..	335.00
" "	41 Lepers, Lunatics, &c. ..	Nunge Headmen and Dresser .. ..	3,530.99
" "	" " .. ..	Food for Lepers .. ..	2,008.34
VI.—District Administration	Market Sweepers .. ..	Dar-es-Salaam Markets ..	11,160.00
Transport Department .. ..	" " .. ..	Cost of Cesspit Lorries ..	
		Total Shs. .. ..	175,235.24

TABLE III.

STATISTICS OF POPULATION FOR 1923.

	Europeans.	Africans.	Asiatics.
No. of Civilian Inhabitants—1921 Census ..	555	10,901	4,008
K.A.R. and Police not included in above ..	—	1,422	—
Total .. ..	555	12,323	4,008
No. of Births registered during the year—1921..	11	—	—
1922..	12	—	—
1923..	12	—	8
(There is no compulsory registration of African and Asiatic Births.)			
No. of Deaths—1921 .. .. .	7	170	52
1922 .. .. .	11	184	44
1923 .. .. .	8	238	79
No. of Immigrants .. .. .	423	—	1,049
No. of Emigrants .. .. .	Not recorded.		
An increase of population in each class is presumed to have occurred, but no figures are available to support the presumption. Insufficient data are available for the calculation of the probable increase.			

TABLE IV.

SUMMARY OF SANITARY WORK DONE DURING THE YEAR IN DAR-ES-SALAAM.

## I.

	Approximate Area.	Number of Proclaimed Open Spaces.
1921	12 square miles .. .. .	None Proclaimed.
1923	9.7 miles .. .. .	„ „
NOTE.—Both the above include a large area of water; the exact area of land within the township is not available.		

## 2. POPULATION (Civilian only).

	No. of Natives (Asiatics and Africans).			No. of Europeans (including Americans).		
	Males.	Females.	Total.	Males.	Females.	Total.
1921	8,097	6,818	14,915	408	147	555
1922			See Table	III. above.		
1923						

TABLE IV.—*continued.*

## 3. HOUSING.

(Figures obtained from Taxation Registers and do not include Government Buildings.)

	Number occupied by Europeans.	No. occupied by Natives (Asiatics and Africans).
Number of Houses.—1921 .. ..	25	588
1922 .. ..	43	622
1923 .. ..	53	530
Number of Huts.—1921 .. ..	—	2,262
1922 .. ..	—	1,975
1923 .. ..	—	2,180

## 4. ERECTION OF NEW BUILDINGS DURING THE YEAR (APRIL TO DECEMBER).

Number of Houses built without sanction	None.—32 notices were served by the Township Authority for work done in excess of permits and contrary to plan.
Number of Huts built without sanction..	3 : all demolished by order.

## Action taken.

Number of Prosecutions.		
	Huts.	Houses.
1923	None.	Two.

NOTE.—Eight New Government Residences completed during the year.

## 5. LATRINES.

		MALES.		FEMALES.	
		Number.	Number of Seats.	Number.	Number of Seats.
1. Number of Public Latrines.	Water carriage	3	18	2	4
	Incineration ..	12	52	3	4
	Total ..	15	70	5	8
2. Number of New Public Latrines erected during 1923.	Water carriage	1	12	1	3
	Incineration ..	—	—	—	—
	Total ..	1	12	1	3

TABLE IV.—*continued.*

5. LATRINES.—*continued.*

3. Number of Private Latrines on dry pan system with Incineration maintained by Health Office for Government Buildings only.	One.
4. Average number of pails of night soil removed daily.	Not counted ; too variable to estimate.
5. Average number of soiled pails removed and clean pails substituted.	Pans are removed, cleansed and replaced at once.
6. Number of Night soil Men employed to clean Latrines and remove excreta.	15.
7. Number of Cesspools, including Soakage Pits.	1921 : 2158. 1923 : No new count taken.
8. Number of Cesspools cleansed .. ..	Not counted.

	1921	1922	1923
Number of loads of cess removed .. ..	2,447	2,472	2,192 (548,000 galls.)
9. Number of new Cesspits constructed.. ..	Not recorded.		
10. Number of old Cesspools abolished .. ..	Not recorded.		
Number of new Privy Pits for which permits were issued .. .. .	472	271	453

## 6. REMOVAL OF REFUSE.

	1921	1922	1923
1. Number of Dustbins (Government Bins) ..	—	—	194
2. Number of Carts removing street sweepings daily .. .. .	—	—	—
3. Amount of street refuse removed daily ..	(See 5 below,	not recorded	separately.)
4. Number of Carts removing house refuse daily	14	14	14
5. Amount of refuse removed daily, <i>i.e.</i> , arriving at Incinerators from all sources :—			
Daily loads .. .. .	59	74	69
Total Cartloads.. .. .	21,683	27,180	25,201
6. Number of Men employed for moving refuse :—			
Ox Cart Boys .. .. .	—	—	40
Incinerator Boys .. .. .	—	—	15

#### 7. MODE OF DISPOSAL OF EXCRETA, REFUSE AND OFFAL.

	Daily average number of Pails of Excreta.			Daily average number of Cartloads of Refuse.			Daily average number of Cartloads of Slaughter- house and Market Offal.
	1921	1922	1923	1921	1922	1923	1921, 1922, 1923.
Buried ..	None.				None.		All slaughter-house offal removed by Veterinary Department. Market offal included with refuse.
Burnt ..	not counted.			60.2	74.4	69.8	

TABLE IV.—*continued.*

## 8. INCOMBUSTIBLE MATERIAL REMOVED.

Cartloads not counted separately—all refuse passed through incinerators before dumping.  
(See page 55.)

## 9. WATER SUPPLY.

Nature of Supply.	1921	1922	1923
<i>Pipe-borne Water from Boreholes :—</i>			
Number of Stand Pipes along roads .. .. .	5	5	6
Price per four gallon tin (in pence) .. .. .	.72	.48	.24
Number of Stand Pipes in Compounds, <i>i.e.</i> , number of Houses and Compounds supplied from mains.. ..	—	—	200
Number of Consumers supplied by water cart .. ..	—	—	50
<i>Wells, Public :—</i>			
Number, excluding Mosque Wells .. .. .	7	7	7
Number with Pumps, and protected against surface water and Mosquito protected—completely .. .. .		None	
—partially against surface water		All	
<i>Private :—</i>			
Number in use .. .. .	295	—	not re-
Number disused .. .. .	52	—	corded
Number protected against surface water and Mosquito protected .. .. .	—	—	—
Numbered uncovered or improperly covered .. ..	—	—	—
<i>Tanks, Public :—</i>			
Number Mosquito protected and served by Pumps—			
Water Supply .. .. .	—	—	11
Fire Storage Tanks .. .. .	—	—	8
Number above ground .. .. .	—	—	19
Number Mosquito protected .. .. .		All	
<i>Private :—</i>			
Number Mosquito protected .. .. .		Not recorded	
Number above ground... .. .		"	
<i>Nature of Tanks :—</i>			
Wood .. .. .		"	
Iron .. .. .		"	
Concrete .. .. .		"	
<i>Barrels :—</i>			
Number .. .. .		"	
Number Mosquito protected .. .. .		"	

TABLE IV.—*continued.*

## 10. DRAINAGE.

Nature of Drainage.	Public.	Private.
<i>Masonry Drains.</i> (Sewers and Piped Drains not included.)		
Lineal yards of Masonry drain.—1921 .. .. .	—	—
1922 .. .. .	2,745	—
1923 .. .. .	2,745	—
Lineal yards reconstructed during the year.—1921 .. .. .	—	—
1922 .. .. .	—	—
1923 .. .. .	—	—
Lineal yards repaired during the year.—1921 .. .. .	—	—
1922 .. .. .	—	—
(3 tidal valves repaired) 1923 .. .. .	—	—
Lineal yards of new drains constructed during the year.—1921 .. .. .	—	—
1922 .. .. .	2,670	—
1923 .. .. .	—	—
<i>Earth Drains or Ditches :—</i>		
Lineal yards of ditches cleaned including cleaning of masonry drains, and including regrading and repairing ditches—		
1921 (Miles 239) .. .. . Yards	420,640	—
1922 ( „ 371) .. .. . „	642,882	—
1923 ( „ 441) .. .. . „	776,151	—
Lineal yards of ditches dug and graded, <i>i.e.</i> , newly dug.—1921 .. .. .	5,438	—
1922 .. .. .	2,299	—
1923 .. .. .	4,991	—
Average frequency clearing ditches of grass—		
1921 (21½ Miles) about every 4·7 weeks		
1922 (22 „ ) „ „ 3·0 „		
1923 (22 „ ) „ „ 2·48 „		

## 11. INSPECTIONS AND PROSECUTIONS.

	1921	1922	1923
Number of Inspectors employed :—			
Native Sanitary Inspectors .. .. .	7.6	9.0	9.0
Mosquito Finders .. .. .	27.0	28.7	26.1
Number of House inspected .. .. .	116,760	—	111,004
Number of Houses wherein Larvæ were found ..	(See Analysis of Sources		of Larvæ.)
Number of Notices served to remove conditions causing the breeding of Mosquitoes .. .. .	135	12	210
Number of persons fined for having Mosquito Larvæ on premises .. .. .	—	—	10
Number of Notices served to remove insanitary conditions on premises .. .. .	—	—	57
Number of persons fined for not removing insanitary conditions after notice .. .. .	—	—	Nil.
Number of Soda and Aerated Water Factories inspected. (Number of inspections not recorded.) .. .. .	1	1	2

TABLE V.  
METEOROLOGICAL RETURNS FOR THE YEAR 1923.

	RAINFALL.	
	Amount in Inches.	Degree of Humidity.
January .. ..	2.46	Not recorded. (See Report of Director of Laboratory.)
February .. ..	.245	
March .. ..	2.005	
April .. ..	8.95	
May .. ..	3.91	
June .. ..	.67	
July .. ..	1.38	
August .. ..	2.29	
September .. ..	.27	
October .. ..	.38	
November.. ..	.47	
December .. ..	2.62	
Total .. ..	25.65	

INFECTIOUS DISEASES HOSPITAL, DAR-ES-SALAAM.  
RETURNS OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1923.

Disease.	Remaining from 1922.	Number of Patients admitted during 1923.	Total number treated during the year 1923.	No. of Deaths
Chicken Pox .. ..	1	25	26	1*
Leprosy .. ..	5	14†	19	2‡§
Measles .. ..	—	1	1	—
Mumps .. ..	2	12	14	—
Tuberculosis of Lungs and Larynx..	—	1	1	—
Pyrexia : Unknown origin .. ..	—	2	2	—
Under observation .. ..	—	6	6	—
Stomatitis .. ..	—	1	1	—
Dermatitis .. ..	—	2	2	—
Total .. ..	8	64	72	3

\* Peri-Urethral abscess confirmed by post portem.

† 3 cases transferred temporarily from Leper Settlement.

‡ Complicated by T.B. Lung.

§ Complicated by ankylostomiasis.

|| Out of the 12 cases, 6 cases were notified by Medical Officer of Health.

EXTRACT FROM ANNUAL REPORT BY DR. A. I. MEEK,  
MEDICAL OFFICER OF HEALTH, TANGA.

*District, TANGA. Year, 1923.*

*Meteorology.*—Total Rainfall, 43.79 inches; Mean Temperature, 80.8° F.

(Meteorological Return attached.)

Number of Houses and Premises Inspected .. ..	65,895
Nuisances other than Mosquito and Fly Larvæ .. ..	109
(In addition to these, 50 collections of fly maggots were found.)	
Notices served .. ..	98
Prosecutions .. ..	28
Convictions .. ..	21



Number of Pits or Excavations filled in .. .. .	19
„ Collections of Fly Maggots found .. .. .	50
„ New Pit Privies ordered to be dug .. .. .	138
„ Cart loads of Refuse removed .. .. .	10,034
Dumps of Rubbish removed .. .. .	47
Number of Samples sent to Laboratory .. .. .	1
„ Sick transported .. .. .	7
„ Burials performed—European .. .. .	4
„ „ Native .. .. .	63
„ Loads of Cess removed by Cesspit Emptier .. .. .	7
„ Trains inspected .. .. .	115
„ Rats killed .. .. .	2,064
„ Convicts supplied .. .. . daily ..	8.3
„ Gallons of Paraffin issued (including Railway 120 gallons) ..	167½
„ „ Cresol used (including Railway 120 gallons) ..	164
Cattle inspected at the Slaughter House .. .. .	4,733
Foodstuffs Condemned and Destroyed—Portions of Meat (including four whole carcasses) .. .. .	1,172
Tins of Food .. .. .	1,248
	— 2,420
Trenches filled in (linear feet) .. .. .	150
Number of School Children inspected (not including sick parades) ..	3,600
Number of Sick Children inspected at School Dispensary (October— December) daily average .. .. .	10

#### TANGA TOWNSHIP AUTHORITY.

The following list details the number of notices, permits, licences, etc., which were issued during the year 1923 after the necessary inspections of premises, etc., were carried out :—

1. Permits to repair buildings .. .. .	25
2. Permits to build new houses .. .. .	18
3. Demolition of building notices .. .. .	4
4. Permits to trim or cut down trees .. .. .	6
5. Permits to collect stones and soil .. .. .	11
6. Permits to erect electric plant .. .. .	2
7. Permits for the transport of animals .. .. .	3
8. Permits for lime washing of buildings .. .. .	3
9. Bakery licences issued .. .. .	4
10. Dairy licences issued .. .. .	2
11. Soda water factory licences issued .. .. .	1
12. Ice factory licences issued .. .. .	1
13. Other notices served .. .. .	6
14. Other inspections carried out .. .. .	27
15. Meetings of the Township Authority held during the year ..	17

The following were the most important matters discussed and agreed upon at the meetings of the Authority :—

1. Kisesera to be site for storage of dangerous and non-dangerous petroleum, the plot to be subdivided into seven, reserving a right of way along the foreshore above high water mark.
2. Site for new incinerator to be on the municipal ground near Tanga Gaol. The building is now nearing completion.
3. Site for stray animals pound agreed to be on the municipal ground near gaol. The pound has been erected accordingly.
4. Plans for proposed new public market and surrounding layout were submitted by the Executive Engineer P.W.D. and Staff Surveyor respectively approved. The government land south of railway and west of Pangani road was chosen as the most suitable site.
5. It was decided that the native pombe shops should be centralised in an area on the Pangani Road.

6. The allocation of the northern half of the plot at the S.W. of School Street and Queen Street Junction for the erection of new P.W.D. buildings, was approved.
7. The Authority approved the allocation of the old laundry site for use as an Infectious Diseases Hospital.
8. Suitable sites for the erection of new Railway stores and Asiatic quarters were selected.
9. It was decided that a portion of land at Kisesera to the west of the slaughter house be allotted for carrying on of offensive trades, *e.g.*, camel oil mills, tanneries, etc.
10. It was agreed that street obstructions caused by dumping of building material should not exceed 50 cubic yards and be laid so as to cause least possible obstruction. Licences for these temporary obstructions to be issued by the Executive Officer countersigned by the District Superintendent of Police and Prisons.
11. The new boundary of the Township as put forward by the Staff Surveyor, Tanga, was approved of.
12. Rules as regards the maintaining of the public markets in a proper state of cleanliness were drawn up by the Executive Officer and approved by the Authority. Disciplinary control of markets was turned over to the District Superintendent of Police and Prisons.
13. The suggestion to appoint a Native Building Inspector when funds are available was approved of.
14. It was agreed that the Executive Engineer be invited to draw up an estimate for the drainage of swamp at Chumbageni.
15. The question of provision of a Magazine for Tanga was discussed and approved of and the Executive Engineer P.W.D. was invited to make a plan of same.
16. An effort was made to enforce the protection of grain stores from rats in accordance with Rule 45.
17. The Authority endeavoured to control the growing of coconut palms within the Township, *vide* Rule 16. The Authority recommended that a clause should be inserted in Township Rules in the lease of Government palms empowering the Authority to reduce the number of palms at any time during the running of the lease.

#### METEOROLOGICAL RETURN FOR 1923.

##### TANGA TOWNSHIP.

Total Rainfall for 1923	...	...	...	...	43.79 inches.
Maximum Monthly Rainfall (April)	...	...	...	...	10.79 ,,
Maximum Daily Rainfall (April 4th)	...	...	...	...	3.42 ,,
Maximum Temperature for 1923 (March 14th)	...	...	...	...	88.8° F.
Minimum Temperature for 1923 (August 1st)	...	...	...	...	73.70° F.
Mean Temperature for 1923	...	...	...	...	80.8° F.

Month.	RAINFALL IN INCHES.		Date.	TEMPERATURE F.		Mean.
	Total.	Heaviest Fall.		Maximum.	Minimum.	
January ..	3.11	1.29	8th	87.4	78.8	83.3
February ..	0.06	0.03	15th	88.3	80.6	84.1
March ..	3.52	2.24	28th	88.8	78.4	84.7
April ..	10.79	3.42	4th	87.4	75.3	81.8
May ..	4.03	1.49	26th	86.9	77.0	81.3
June ..	3.06	1.46	24th	82.0	75.7	79.0
July ..	4.27	2.13	31st	83.6	75.2	77.9
August ..	5.62	3.18	4th	84.3	73.7	76.4
September ..	2.09	1.42	2nd	82.0	73.9	78.0
October ..	1.12	0.41	17th	86.3	76.6	80.2
November ..	2.48	0.72	8th	85.6	77.9	81.8
December ..	3.64	1.58	3rd	86.9	77.7	82.2

## VACCINATION REPORT FOR THE YEAR 1923.

Month.	Number Vaccinated.	Number Successful.	Number Modified.	Number Failures.	Number not seen again.
January .. ..	55	18	13	9	15
February .. ..	1,530	448	443	604	35
March .. ..	3,733	638	870	1,295	930
April .. ..	796	—	—	—	796
May .. ..	592	—	—	—	592
June .. ..	495	91	60	49	295
July .. ..	256	1	2	12	241
August .. ..	1,546	442	—	352	752
September ..	1,586	397	—	121	1,068
October .. ..	1,867	334	—	166	1,367
November ..	863	—	—	—	863
December ..	1,293	—	—	—	1,293
Total ..	14,612	2,369	1,388	2,608	8,247

3,757 Successful and Modified successful results out of 6,365 vaccinations inspected, *i.e.*, successful and modified.

## PREVENTIVE MEASURES.

1. *Anti-Mosquito Work*.—The usual routine work of inspection, oiling and disinfecting, drain clearing and digging, filling in of pits, etc., was carried out during the year, as per statistics shewn above.

A general slackness on the part of householders in failing to co-operate with the Department, in carrying out the preventive measures expected of them, and also the fact that the rainfall was more or less evenly distributed throughout the year, necessitated the detailing of a larger number of mosquito-finders than was formerly employed, with the resulting large number of larvæ collections quoted above. Twenty prosecutions on European, Asiatic and Native offenders were conducted, with marked benefit, and towards the end of the year it was observed that the bulk of larvæ collections were obtained from unoccupied open spaces of land throughout the town.

The percentage of anopheline collections (0.5) obtained is much smaller than that of previous year.

The large swamp which formerly existed at the hospital has been practically filled in during the year, the ashes from the incinerators having been used for this purpose.

The Kisesera swamp referred to elsewhere has been periodically oiled and cresoled pending the introduction of a proper drainage system.

The condition of drainage in general is detailed in another part of the Report.

The regular oiling of *all* cesspits and soakage pits throughout the town has been rigorously carried out, the new cesspit emptier being used for the transport of disinfectant for this purpose, when not in use otherwise.

The removal of dumps of old iron, etc., from the vicinity of the Railway Station and Customs to an isolated position up the line has done much to minimise the number of mosquito breeding places in these parts of the town.

2. *Small-pox*.—In January the outbreak in Buiti Sub-district of 1922 continued with the occurrence of nine fresh cases, and a vaccinator was sent out to complete the vaccinating campaign previously carried out in that district. Eighteen fresh cases were reported in February.

In March small-pox was reported in Kenya Colony near Moa, a vaccinator was at once detailed for work at Moa, but a case of small-pox was notified in that district in April, followed by cases in Tanga during May, June and July. During these months vaccination work was carried out in the affected districts.

In July an outbreak of ten cases with two deaths was reported at Buiti. This outbreak is difficult to understand. The population of Buiti is 9,155. During the last two and half years over 17,000 vaccinations have been reported performed there, 7,922 with successful results. Buiti is a wild out-district and it is fairly certain that on some occasions the vaccinators have evaded their duty from fear, and brought in false returns.\* It is, however, the case that at least 6,000 vaccinations were performed under the direct supervision of a European Sanitary Superintendent who visited the district in 1922.

The remainder of the cases were reported at Moa, Tanga, Tangata and Pongwe, numbers detailed above, and three cases remained at the Sub-District of Tangata on the 31st of December.

The total number of cases reported for the whole district was 98, with 10 deaths, these statistics being practically level with those for 1922, the improvement on 1921 figures being maintained.

The fact that during the last three years nearly 120,000 vaccinations have been performed with approximately 70 per cent. of successful results, in this district, with its population of 86,404, and in spite of this, outbreaks of small-pox continue to occur, seems to indicate that more attention must be paid to surrounding districts and to the vaccinations of travellers; with this in view Dr. Meek, the M.O.H., visited Usambara district adjoining Buiti, and ascertained that as many as 95 per cent. of the natives in this vicinity are unprotected against Small-pox. A vaccinator has been detailed for work in this district. Particular attention is also being paid to the inspection and vaccination where necessary, of all travellers arriving at Tanga by ship or dhow, a vaccinator accompanying the M.O.H. always when a ship is being cleared—all travellers leaving the town are also inspected for the same purpose.

3. *Ankylostomiasis and Intestinal Infective Diseases.*—The usual routine work with regard to latrine inspections, removal of refuse, anti-fly maggot work, inspection of food, supervision of water supply, etc., was carried out during the year as per statistics shewn above.

All the sumps in connection with wells in the native village have been filled in with rock so as to act as soakage pits. The polluted contents of these sumps formerly provided the natives with an exceedingly objectionable water supply.

The water supply in the native town is unsatisfactory and many good wells are rendered useless on account of defective windlasses and chains. We hope to have this remedied in the near future when the Executive Engineer obtains the water vote.

Much remains to be done in the out-districts with regard to the inspection of the smaller townships with a view to the improvement of sanitary conditions at these places, and we hope to be able to apply European sanitary supervision during the ensuing year. We were unable to do this last year on account of the shortage of European staff.

With regard to educational propaganda, the class in hygiene now being conducted at the Tanga Government School gives promise of good results for the future.

4. *Bilharziasis.*—Since the introduction of the dispensary work at the Tanga Government School it has been observed that a considerable number of school children act as hosts for the organism of this disease. During the months of November and December as many as forty well-marked cases were detected. Two likely sources of infection are at present under observation and several samples (suspected molluscs) have been forwarded to the Director of Laboratory at Dar-es-Salaam for examination. Definite information is not yet to hand. Meantime, the suspected pools are being periodically treated with disinfectant.

5. *Yaws.*—The incidence of this disease in Tanga township itself is not great, but reports from mission dispensaries up country seem to indicate that it provides a problem for preventive medicine at some of these out-stations. The constant recurrence of re-infected cases suggests that more firm measures will have to be taken with regard to the isolation of natives suffering from this disease, and the better carrying out of general sanitary measures at the villages concerned.

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\* See report of Dr. Nixon's visit inspection on page 95.

NOTES OF SANITARY IMPROVEMENTS AND OTHER WORK DONE IN THE TOWNSHIP DURING THE YEAR.

1. *New European Bungalows.*

Three stone bungalows with tiled roofs have been built on the south side of Mission Street. Each house has an open verandah back and front, a mosquito proofed side verandah, two living rooms, two store rooms and a combined bathroom and w.c.

There is an outbuilding attached to each house containing a kitchen, a boys' room and boys' w.c.

Water is laid on to each house and the soil and waste pipes drain to a permeable pit which is deep and well constructed. A washing slab is provided, draining into a separate soakage pit. Another pit has also been constructed immediately outside the boys' w.c.

2. *Drainage.*

*Mission Drain.*—This is a large surface drain in Mission Street, a considerable length of which was destroyed by storm water during the military occupation. Subsequently rains have converted the lower part of the drain into an irregular ravine. As a temporary measure an arrangement of corrugated iron on trestles has been erected to carry the water over the worst part of the gap. The Public Works Department are constructing a concrete covered drain on the lower level, with a vertical shaft at the broken point in Mission Street. The parallel ravine due to the storm water from Plantation Street is being gradually filled up with tree trunks, etc. It is feared that a considerable proportion of the funds recently allotted for drainage improvements will be spent to carry out the above work.

11,360 linear feet of new drains were dug by the Health Department during the year—otherwise the drainage system throughout the township remains as formerly.

A scheme for the better drainage of the native village is an urgent necessity. The drainage at several points in the European town also requires attention, *e.g.*, a new drain is required for the west end of Market Street, a more permanent built drain for School Street, a connection from this to the drainage in King Street, several culverts are required and practically all drains in the European town require re-levelling.

3. *Slaughter-house.*

The buildings are situated on the Kisesera foreshore. The larger of two buildings is used for the slaughter of cattle, the smaller for pigs. Both buildings are in fairly sound condition. Minor repairs have been carried out during the year by the Public Works Department. A small room attached to the larger building is used for storing refuse bins, cleaning materials, etc.

The slaughter-house is equipped with a boiler to provide hot water for scouring of carcasses. As very few pigs are slaughtered in the township, this boiler has been in use during the year for preparing salt from salt spring water available in the vicinity, the salt so obtained being used in the public latrines, etc., when cresol or other disinfectant were not available.

A new three-ring well was recently sunk by the Public Works Department to provide water for cleansing purposes. A pump and hose are to be added.

The present sleeper incinerator for destroying gut contents and offal is somewhat unsatisfactory. A new incinerator is shortly to be erected here by the Public Works Department.

A wire superstructure is to be added to the cattle pen to allow cattle to be kept overnight without fear of carnivora obtaining an entrance.

The butchers do rough cleaning after slaughter. Two Health Department boys are on permanently for cleaning, tending an incinerator and preparing salt. A European Sanitary Superintendent inspects daily, and a native of the Veterinary Department takes smears, to be sent for examination.

About 80 per cent. of the animals have been found to be infected with the organism of East Coast Fever, while liver flukes are common.

The present method of transport of meat from the slaughter-house is unsatisfactory—it is carried on poles by the natives through the town. It is desirable that the trolley lines should be extended to the slaughter-house and the meat carried in trolleys constructed for the purpose. The extended line would also serve the go-down plots for storage of petroleum, east of the slaughter-house.

#### 4. *Cemeteries.*

The work of clearing the five cemeteries (European, Roman Catholic, British Memorial, German Protestant, and Native) and isolated graves throughout the town was carried out by the Health Department during the year. The number of European and Native burials performed is detailed above.

An attempt was made to lay out the graves in the native cemetery in a more orderly fashion than formerly, and this has been carried out with success during the year. A sanitary boy is kept permanently on this work and he also keeps the cemetery in a clean condition.

*New Native Christian Cemetery.*—A plot of land at Kwaminchi was purchased by native Christians living in Tanga, and has been laid out as a native Christian cemetery. The site was inspected by the M.O.H. and approved for the purpose.

The question of the better conducting of European funerals was gone into and funds were obtained by subscription from European residents to cover the cost of purchasing a suitable bier for carrying the coffin into the cemetery and obtaining uniforms for the sanitary boys working in connection with the burials.

#### 5. *Infectious Diseases Hospital.*

The site of the old German laundry at Kisesera was selected as the most suitable for the purpose of erecting an infectious diseases hospital, owing to the difficulties re transport and water supply for the island site formerly proposed not having been satisfactorily solved. The laundry building has been disused since the occupation. It is of good construction and at a small expense could be converted into an isolation hospital. There are no other buildings in the immediate vicinity, and the situation is more convenient for supervision than the island site.

As it was the original intention, however, to renovate the building for the purpose formerly employed, we consider that some alternative laundry accommodation should be provided. The only public laundry accommodation at present available in the township consists of several stagnant pools of fresh water replenished by a small rivulet near the township boundary at Chumbageni. Between twenty and thirty dhobies use this site daily for the washing of clothes and three hundred or more school children also use these pools periodically for the same purpose. Mosquito larvæ abound in this situation and the pools are also suspected as a source of Bilharziasis infection. We believe that this area could be drained into the sea, which is reasonably near, and a collecting tank and washing slab erected at reasonable cost to provide suitable washing facilities and at the same time wipe out the large swamp at Kisesera, which is apparently fed by the same source.

#### 6. *Wells.*

Tanga is dependent on wells for water supply. The existing wells are insufficient in number and many are useless owing to defective windlasses and chains. The water shortage has led to natives digging private wells in their own compounds, suitable for mosquito breeding and surface soil contamination.

The necessary repairs to the public wells are to be put in hand when the Executive Engineer obtains the water supply vote.

The new well sunk in Ngamiani has unfortunately had to be temporarily abandoned, as apparently the catchment area is at a considerable depth from the surface.

The dangerous overflow sumps in connection with the wells in Ngamiani have been filled in with rock in order to function as soakage pits and prevent drowning accidents or the drinking of their polluted contents.

#### 7. *Incinerators.*

The town refuse up to the present time has been burnt on sleeper incinerators, the main station being in School Street, a smaller station at Ngamiani and a single incinerator at the slaughter-house.

A modern stone incinerator has been erected at the School Street site, and is now in use. The combustion of refuse is both speedy and thorough and we are now enabled to completely dispose of the rubbish collected from the European area from day to day.

Smaller stone incinerators are to be built at Ngamiani and slaughter-house, if funds permit.

The products of the incinerators are used for filling in the hospital swamp and other depressions in the town.

#### 8. *Markets.*

The European Market is in Market Square in the centre of the European town. The site is unsatisfactory as the Square has European residences on all sides, meat and other produce is brought in and refuse is taken out through the European area.

The native market is in Ngamiani. The site is convenient, but cramped, and there is no room for expansion.

Both buildings require extensive repair to their roofs, timber, etc. This repair is being held over pending the decision as to the construction of a new combined market.

A design has been submitted by the Executive Engineer for a new market at a cost of £3,300.

The most suitable site is on the Government land south of the railway and west of Pangani Road. The plan of a suitable lay-out has been submitted by the Staff Surveyor, Tanga.

The fish market is on the foreshore between the Customs and Police Boma.

An improved system for the cleansing of the public markets was advised and brought into operation. With the approval of the Political Department, authority was obtained to have the market closed down each day at 5 p.m., thus enabling the sanitary boys to remove all articles from the market and have the place thoroughly washed out daily. This was done under the supervision of the European Sanitary Superintendent. A great improvement in cleanliness has resulted. A more orderly arrangement than formerly of coffee stalls and fruit and vegetable stances has also been observed, special sections suitably subdivided being provided for each class of produce.

#### 9. *Gaol and Police Lines.*

The gaol is clean and well kept, but suffers from lack of yard space and accommodation for female prisoners, a poorly constructed kitchen and rather unsatisfactory latrines.

These difficulties can only be solved by an enlargement scheme, and plans have been submitted for reconstruction by demolition of the back section of the prison, including the kitchen and latrines and the building of new lines some thirty feet back.

During the year improvements have been carried out in prison drainage by reconstruction of soakage pits, but the present pan-system of latrines is unsatisfactory, and a trough latrine system water flushed, emptying into a septic tank is considered desirable.

The present food store is unsatisfactory and rat-proof bins would improve matters considerably.

The Askari lines are usually well kept. Additional quarters are in course of erection.

#### 10. *New Health Offices.*

The new premises in King Street were taken over in March and have been found satisfactory. The accommodation includes suitable rooms for M.O.H., Sanitary Superintendents and clerks, room for vaccination and mosquito work, an apartment for work relating to the Township Authority, a reception room for natives awaiting examination, vaccination, etc., and a large go-down for stores. The Health Department carts and other stores are accommodated in two sheds on the municipal ground near the Askari Lines.

One Sanitary Superintendent is provided with suitable quarters above the Health Office.

#### 11. *Tanga Government School.*

In October a dispensary was started at the school with a view to the treatment of children suffering from minor ailments. This was done in order to save a great deal of time formerly spent by pupils in going to and from the hospital for dressings, etc., the control of sick boys on the premises also assisting the schoolmaster in maintaining a better discipline in the school. The dispensary is under the direction of the M.O.H., who visits the school daily and sees the sick, and is assisted by a native dresser.

The need for training boys to assist in the work of dressers became apparent and this led on to the idea of forming a small class of intelligent boys for instruction in elementary hygiene and first aid. The object in view is to catch suitable boys while they are young and combine the medical training with the normal school work, to produce after three or four years an intelligent English speaking boy who has acquired sufficient proficiency in the work of a native hospital dresser or sanitary inspector, to enable the Medical and Sanitation Department to take him on in any of these capacities or at least for a much shorter probationary period than would otherwise be necessary, thereby saving the Department a considerable amount of expense.

The question of obtaining suitable text books, charts, etc., will have to be gone into and a standardised course of instruction, drawn up to bring the course more or less in line with similar courses conducted elsewhere in the Territory, will probably be advisable. Meantime, simple lessons in elementary hygiene, etc., and practical demonstrations in First Aid work are being given the boys under training by the M.O.H. in the afternoons, while during the forenoons they go on with their normal school work. The Head Master, Mr. Foster, is lending every assistance possible in connection with the dispensary and class work.

#### 12. *Tanga Railway Premises.*

The sanitation of the premises at Tanga station is satisfactory. The transfer of dumps of refuse, old iron, etc., from Tanga station to an isolated position up the line has done much to obviate the existence of mosquito breeding places formerly prevalent in the vicinity of the station.

The lack of a European Sanitary Inspector on railways was felt in relation to the sanitation of stations on the line and also the delay in procuring of funds for the remedy of sanitary defects in stationmasters' quarters and provision of adequate latrine accommodation, resulted in rather an unsatisfactory condition with regard to sanitation at many of the stations. Most of these defects had, however, been taken on hand by the end of the year.

The existence of so many sump and pit latrines, the type most favoured by the Railway Department, present a problem with regard to the extensive breeding places for fly maggots thus afforded; and we have always advocated that, where possible, the pan system of latrine with incinerator should be installed.

#### 13. *Tanga Hospital.*

Improvements to premises were carried out during the year, notably the erection of a Mortuary and Post-Mortem Room, improvements to the Goanese Ward with the provision of bathing and latrine accommodation and the installation of the new quarters for the Nursing Staff.

The water supply of the hospital is unsatisfactory and requires attention.

#### 14. *Tanga Public Latrines.*

These pan latrines consist of three roughly constructed corrugated iron enclosures unroofed and without drainage. To minimise the occurrence of nuisance, a thick layer of sea sand is spread over the floors and frequently renewed and sand provided in a box for applying to excreta in the pans. The latrines situated on the foreshore, near the Post Office, and in School Street, are insufficient in number, and a better type of latrine is desirable.

During the year a properly constructed pan latrine with water flushed urinal and bathing accommodation, suitably drained, was installed at the Tanga Government School.

A pan latrine was also erected at the Customs Compound.

#### 15. *Housing—Indian Area.*

This area is in a very unsatisfactory condition, and in the near future the Township Rules will have to be rigorously applied to remedy the serious defects *re* sanitation with regard to overcrowding, construction of cesspits, and other items.

*Native Area.*—A considerable number of old empty houses, the owners of which cannot be traced, require demolishing. The Health Department has not the labour to carry out this work. Convict labour might be quite usefully employed in this work (at the end of the year all convict labour on routine work, such as conservancy and grass cutting, was dispensed with as it was considered that such work could be much more satisfactorily carried out by the Health Department staff).

A considerable number of applications have been received from occupants to convert the verandahs of their houses into shops. As these shops are a source of revenue, no objection was raised, but the Township Rules affecting these verandahs were strictly applied.

#### 16. *Collection and Disposal of Household Refuse—Native Area.*

The present system in the native area is very unsatisfactory. There are two carts employed daily collecting refuse in the area. The carts are very heavy and cumbersome, four boys are employed on each cart, the roads are very sandy and in most places are quite inaccessible, so that it is practically impossible to maintain the area in proper sanitary condition.

In places where it is impossible for the carts to visit, it is the practice for the natives either to bury the refuse in a great pit or in the dry weather to burn it. Both these methods are unsatisfactory, as when pits are dug it is usually months before they become full and they provide suitable places for the breeding of fly maggots and other nuisances, furthermore, when indiscriminate burning is resorted to, grave danger of setting fire to the neighbouring houses is experienced.

It is considered that it would be better to withdraw the carts and utilize them in the European area, where they could be used to advantage, and to employ donkeys on the work of collection in the native area. Probably six donkeys would suffice to clear the whole of the area daily. Each donkey could be provided with two large baskets slung across its back and could so gain easy access to all out of the way corners. The cost of maintaining the donkeys would be very little as there is plenty of fresh green grass to be had, and only a small amount of mealies would require to be purchased each month. The money paid to the two extra labourers at present employed on the carts would suffice to pay for the upkeep of the animals. Suitable accommodation is available for housing the animals.

The old type of open slow combustion incinerators are still in use. These are very unsatisfactory during the wet season, but we hope to have a properly constructed stone-built incinerator in use in the near future.

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### REPORT ON THE SANITATION OF TABORA BY DR. J. G. McNAUGHTON, ACTING S.M.O., TABORA.

#### III. SANITATION.

##### 1. ADMINISTRATION.

The Sanitation Staff consists of :—

- (a) One European Sanitary Superintendent.
- (b) Two Native Sanitary Inspectors.
- (c) Sanitary Labourers, whose number varies from fifty to seventy according to the season of the year.

##### 2. PREVENTIVE MEASURES.

Two Native Sanitary Inspectors are constantly visiting native houses and their surroundings, looking out for breeding places of mosquitoes. Where possible, standing pools are drained, and where this is not practicable, the pools are oiled, *i.e.*, in the township itself.

Arrangements are being made for the Native Sanitary Inspectors, under the supervision of the Sanitary Superintendent, to visit the boys' school at least once a week, and to say a few words about the spread of disease, both by means of mosquitoes and by dirt.

##### 3. SEWAGE DISPOSAL AMONGST THE NATIVES.

The custom here is to dig a pit, 2 or 3 feet deep, at the rear of the house. The opening is made small; perhaps about 6 inches in diameter. This pit is used as a latrine, and when it becomes offensive, or even before that, a fresh one is made in a new place. I have frequently examined these "choo pits," and have never found them offensive or likely to be a menace to the public health.

Appended are Sanitary Superintendent Owen's tables concerning the work of the Sanitation Department.

## 4. INFECTIOUS DISEASES.

Two cases of bilharziasis have been seen. Both were imported; one occurred in a Nyasaland native, and the other in an Arab from Muscat.

Small-pox is endemic, but in the past year the epidemics have been small. Twelve small outbreaks occurred, with 149 cases and 38 deaths. Seven of these epidemics were in the Kahama district, with 136 cases and 38 deaths.

Two vaccinators have been at work, and over 9,500 vaccinations have been performed.

The native population of this district generally is fairly well vaccinated.

During the year I have examined the arms of 2,719 casual natives. Of these, 1,488 had been vaccinated, or were otherwise protected from Small-pox, a percentage of 54.

When Small-pox occurs in a district, the Sultan isolates the patient or patients, segregates the contacts, and reports the matter to the nearest white officer. He, in turn, reports to me; a vaccinator is sent, who vaccinates all the contacts, and also takes the opportunity of vaccinating all other young people found unvaccinated.

*Venereal Diseases.*

These, as in former years, are responsible for a considerable amount of the sickness amongst the natives. Syphilis, in my opinion, is a good deal to blame for the large infantile death rate.

With the assistance of the Senior Commissioner and the Liwali of Tabora, I am having a pamphlet on Syphilis distributed among the natives, calling attention to the results of the disease, and asking natives affected to come to the hospital for treatment. It is also suggested that a few remarks *re* V.D. might be made to groups of natives by the Senior Medical Officer. In this connection it is remarkable that the men examined as labour recruits during the past year showed an infection of less than 1 per cent. of V.D. This freedom from these diseases is not borne out by the admissions to hospital. These diseases are probably more common in Tabora itself and in some of the sub-districts than in the areas from which labour recruits are drawn.

TABLE III.

*Return of Statistics of Population for the Year 1923.*

Number of Births during the year	..	..	..	5 Europeans.
„ Deaths	„	..	..	1 European.
„ Immigrants	„	..	..	Nil Europeans.
„ Emigrants	„	..	..	„
„ Inhabitants	„	..	..	105
Statistics for Africans and Asiatics are not available.				

TABLE IV.

*Summary of routine Sanitary Work done during the year, in the Town of Tabora.*

1.	Approximate area .. ..	1,056,500 square yards.—Proclaimed Open Spaces	3		
2.	Population .. ..	518,100 (of whole District), 19,500 (Town).			
3.	Housing .. ..	Number of Houses occupied by Europeans .. ..	69		
		“ “ “ Natives .. ..	4,900		
		“ “ “ Huts (included in number of Native Houses).			
4.	Erection of new Buildings during the year.				
	Number of Houses built without sanction .. ..	Nil.			
	“ “ Huts “ “ “ “ “ “ “ “	Nil.			
	Action taken.—Prosecutions.—Houses, 0; Huts, 0; Additions 1.				
5.	Latrines.—				
		For Males.	For Females.		
	Public Latrines.—	No.	No. of Seats.	No.	No. of Seats.
	1922 .. ..	6	25	4	20
	1923 .. ..	7	27	5	22
	New Public Latrines erected.—				
	1922 .. ..	2	21	1	2
	1923 .. ..	1	2	1	2
	Private Latrines, 1923 .. ..				108

Average number of pails of night-soil removed daily.. .. .	108
„ „ „ soiled pails removed, and clean pails substituted	108
Number of night-soil Men employed to clean Latrines and remove excreta.. .. .	6
Number of Cesspools .. .. .	7
„ „ „ cleaned .. .. .	1
„ „ „ new Cesspools constructed.. .. .	1
„ „ „ old Cesspools abolished .. .. .	2
6. Removal of Refuse, 1923.—	
Number of dustbins .. .. .	36
„ „ „ carts at work daily, to remove refuse from streets ..	2
Amount of refuse removed daily (cart-loads).. .. .	16
Number of carts at work daily to remove refuse from yards and premises .. .. .	2
Amount of refuse removed daily from yards and premises (cart-loads)	20
Number of Men employed for moving refuse .. .. .	10
7. Mode of Disposal of Excreta, Refuse and Offal, 1923.—	
Daily average number of pails of excreta burned .. .. .	230
„ „ „ „ cart-loads of refuse burned .. .. .	42
„ „ „ „ „ „ „ buried (incombustible)	3
„ „ „ „ „ „ „ cart-loads of slaughter-house and market offal trenched .. .. .	4
8. Daily average number of cart-loads of tin cans, bottles, broken crockery and other incombustible material removed from Houses, Huts and Compounds, in 1923 .. .. .	
	3
9. Water Supply.—	
Pipe borne water.—	
Source:—Kidete wells ; constant and unlimited supply ..	5 wells.
Number of stand pipes along roads .. .. .	2
„ „ „ in Compounds and Houses .. .. .	10
„ „ „ near Kidete Well .. .. .	3
Wells, Public.—	
Number .. .. .	20
„ „ „ with pumps protected against surface water .. .. .	9
„ „ „ mosquito-protected .. .. .	2
Wells, Private.—	
Number .. .. .	23
„ „ „ protected against surface water.. .. .	18
„ „ „ mosquito-protected .. .. .	—
Tanks, Public.—	
Number mosquito-protected, and served by pumps .. .. .	1
„ „ „ above ground .. .. .	4
„ „ „ mosquito-protected .. .. .	1
„ „ „ under ground .. .. .	—
Tanks, Private.—	
Number mosquito-protected .. .. .	28
„ „ „ above ground .. .. .	43
„ „ „ below ground, but not now in use .. .. .	1
Nature of Tanks—	
Wood .. .. .	—
Cast iron .. .. .	4
Corrugated or sheet iron .. .. .	43
Concrete .. .. .	—
„ „ „ Masonry cemented reservoir in Boma (empty) .. .. .	1
Barrels .. .. .	—

## 10. Drainage.—

Nature of Drainage in 1923.						Public.	Private.
Lineal yards of masonry drains	..	..	..	..	..	1,919	500
„ „ reconstructed	..	..	..	..	..	150	—
„ „ repaired	..	..	..	..	..	—	20
„ „ of new drains constructed	..	..	..	..	..	1,419	—
„ „ of earth drains or ditches cleaned	..	..	..	..	..	5,280	82
„ „ of ditches dug and graded	..	..	..	..	..	3,520	—
Average frequency of clearing ditches of grass and sand, per month						Twice	Once

## 11. Inspections and Prosecutions in 1923.—

Number of Inspectors employed	..	..	..	..	..	..	2
„ houses inspected	..	..	..	..	..	..	15,511
„ houses where larvæ were found	..	..	..	..	..	..	197
„ notices served to remove conditions causing the breeding of larvæ	..	..	..	..	..	..	12
„ persons fined for having larvæ on premises	..	..	..	..	..	..	1
„ notices served to remove insanitary conditions on premises	..	..	..	..	..	..	45
„ persons fined for not removing insanitary conditions after notice	..	..	..	..	..	..	—
„ soda and aerated water factories inspected	..	..	..	..	..	..	4

## 12. New Works, etc.—

One new bungalow for K.A.R.'s, and one in course of erection.  
 New cess-pit and W.C.'s at European Hospital.  
 New concrete floors for two produce, and one pombe market.  
 Concreting of Market-master's office.  
 New well with pump, and water supply pipe, for slaughter-house.  
 New water main from Kidete to market (1,450 yards) with two stand pipes at market.  
 New roadside channel drains dug along both sides of eight streets and roads.  
 New well at Kidete.  
 New school.  
 New P.W.D. Dépôt.

TABLE V.

*Meteorological Return for the Year 1923.*

Month.				Temperature in Degrees C.			Rainfall in mm.
				Shade Max.	Shade Min.	Range.	
January	..	..	..	29·4	17·5	11·9	120·6
February	..	..	..	29·9	17·7	12·2	234·7
March	..	..	..	29·6	18·4	11·2	145·2
April	..	..	..	29·7	17·9	11·8	281·6
May	..	..	..	27·0	18·7	8·3	86·7
June	..	..	..	27·8	15·5	12·3	Nil.
July	..	..	..	29·8	15·7	14·1	„
August	..	..	..	28·6	17·1	11·5	„
September	..	..	..	29·7	17·2	12·5	7·1
October	..	..	..	30·3	18·8	11·5	Nil.
November	..	..	..	34·0	16·3	17·7	61·8
December	..	..	..	30·8	15·7	15·1	(9th–30th) 371·3

SUMMARY OF ROUTINE SANITARY WORK DONE DURING THE YEAR IN THE TOWNS  
MOROGORO, KILWA, IRINGA, LINDI AND DODOMA.

					Total approximate area.	Total number of proclaimed open spaces.
1923	..	..	..	..	28½ square miles.	8

2. *Total Population.*

					Number of Europeans.	Number of Natives.	
					Males.	Females.	Males.
							Females.
							Total.
1923	..	..	..	..	115	37	11,466
							9,245
							20,863

3. *Housing.*

					Number occupied by Europeans.	Number occupied by Natives.
Number of Houses 1923	..				66	1,351
Number of Huts 1923	..				—	2,770

4. *Erection of New Buildings during the Year.*

Number of Houses built without sanction	..	..	..	..	..	..	Nil.
Number of Huts built without sanction	..	..	..	..	..	..	Nil.
Action taken.							

							Number of prosecutions.
							Huts.
							Houses.
1923	..	..	..	..	..	..	Nil.
							Nil.

5. *Latrines.*

					For Males.		For Females.
					Number.	Number of Seats.	Number.
							Number of Seats.
Number of Public Latrines, 1923					22	126	20
Number of New Public Latrines erected during the year, 1923					3	16	3
*Number of Private Latrines	..	..	..	..	..	..	..
Average number of pails of night-soil removed daily	..	..	..	..	..	..	..
Average number of soiled pails removed and clean pails substituted	..	..	..	..	..	..	..
Number of night-soil men employed to clean Latrines and remove excreta	..	..	..	..	..	..	..
Number of cesspools	..	..	..	..	..	..	..
Number of cesspools cleansed	..	..	..	..	..	..	..
Number of new cesspools constructed during the year	..	..	..	..	..	..	..
Number of old cesspools abolished	..	..	..	..	..	..	..

6. *Removal of Refuse.*

Number of dustbins	..	..	..	..	..	..	..	875
Number of carts at work daily to remove refuse from streets	..	..	..	..	..	..	..	6
Amount of refuse removed daily—cart-loads	..	..	..	..	..	..	..	21
Number of carts at work daily to remove refuse from yards and premises	..	..	..	..	..	..	..	2
Amount of refuse removed daily from yards and premises—cart-loads	..	..	..	..	..	..	..	10
Number of men employed for moving refuse	..	..	..	..	..	..	..	23
In some of the towns householders have to make their own arrangements to remove household refuse to the incinerators.								

7. *Mode of Disposal of Excreta, Refuse and Offal.*

				Daily average number of pails of excreta.	Daily average number of cart- loads of refuse.	Daily average number of cart- loads of Slaughter House and Market Offal.
				1923.	1923.	1923.
Buried, or trenched	..	..	..	—	3	½
Burnt	..	..	..	321	43	3
Thrown into sea	..	..	..	—	—	—

\* Does not include the Deep Pit Latrines which are provided in nearly all Native Houses or Huts.

8. *Average Daily Number of Cart-loads of Tin Cans, Bottles, Broken Crockery and other Incombustible Material removed from Houses, Huts and Compounds.*

1923 .. .. .  $\frac{1}{2}$

9. *Water Supply.*

Pipe-borne water.—

Source (river, lake or spring) :—Spring	..	..	..	..	..	1
Number of stand-pipes along roads	..	..	..	..	..	1
Number of stand-pipes in Compounds and Houses	..	..	..	..	..	16

Wells, Public.—

Number	..	..	..	..	..	..	..	..	..	9
Number with pumps protected against surface water and mosquito-protected	..	..	..	..	..	..	..	..	..	1

Wells, Private.—

Number	..	..	..	..	..	..	..	..	..	112
Number protected against surface water and mosquito-protected	..	..	..	..	..	..	..	..	..	1

Tanks, Public.—

Number mosquito-protected and served by pumps	..	..	..	..	..	..	..	..	..	3
Number above ground	..	..	..	..	..	..	..	..	..	16
Number mosquito-protected	..	..	..	..	..	..	..	..	..	10

Tanks, Private.—

Number mosquito-protected	..	..	..	..	..	..	..	..	..	—
Number above ground	..	..	..	..	..	..	..	..	..	61
Number mosquito-protected	..	..	..	..	..	..	..	..	..	1

Nature of Tanks.—

Iron	..	..	..	..	..	..	..	..	..	68
Concrete	..	..	..	..	..	..	..	..	..	23

At Iringa and Morogoro many natives obtain water direct from running rivers.

10. *Drainage.*

Nature of Drainage.	Public.	Private.
Masonry Drains.—		
Lineal yards of masonry drains, 1923	6,300	1,250
Lineal yards reconstructed during the year	Nil.	Nil.
Lineal yards repaired during the year	14	„
Lineal yards of new drains constructed during the year	1,060	„
Earth Drains or Ditches.—		
Number of linear yards of ditches cleaned	27,480	120
Number of linear yards of ditches dug and graded	5,848	Nil.
Average frequency clearing ditches of grass	Once Monthly.	

11. *Inspections and Prosecutions.*

	1923
Number of Inspectors employed	5
Number of Houses inspected	10,917
Number of Houses where larvæ were found	275
*Number of notices served to remove conditions causing the breeding of larvæ	—
Number of persons fined for having mosquito larvæ on premises	Nil
Number of notices served to remove insanitary conditions on premises	179
Number of persons fined for not removing insanitary conditions after notice	13
Number of Soda and Aerated Water Factories inspected	4

\* Verbal notice given in each case.

## VACCINATION.

155,000 doses of vaccine were issued by the Director of Laboratory during the year.

The following table shows the results that have been reported from the various districts during 1923.

District.	Number Vaccinated.	Successful.	Modified.	Failed.	Not seen again.
NORTHERN AREA.					
Bukoba .. ..	723	20	—	1	703
Mwanza .. ..	3,600	1,936	924	729	13
Arusha .. ..	5,853	723	503	944	3,683
Usambara .. ..	2,694	1,668	260	375	391
Moshi .. ..	2,869	405	—	1,003	1,461
CENTRAL AREA.					
Tabora .. ..	14,375	6,235	1,349	1,512	5,282
Dodoma .. ..	9,466	6,655	401	707	1,703
Kondoa-Irangi ..	1,812	443	272	108	989
Morogoro .. ..	3,230	1,011	511	532	1,176
SOUTHERN AREA.					
Iringa .. ..	5,523	2,795	1,187	814	727
Mahenge .. ..	2,290	1,202	353	599	136
Songea .. ..	2,737	1,456	711	560	10
WESTERN AREA.					
Ujiji .. ..	777	231	15	215	316
Ufipa .. ..	1,878	624	144	799	311
Rungwe .. ..	620	321	—	186	213
COASTAL AREA.					
Tanga .. ..	14,234	2,369	1,724	2,250	7,891
Pangani .. ..	2,156	2,034	—	82	46
Bagamoyo .. ..	4,305	2,091	707	1,246	261
Dar-es-Salaam ..	817	—	—	—	817
Rufiji .. ..	4,047	2,127	973	933	1,014
Kilwa .. ..	7,162	3,822	215	1,012	2,113
Lindi .. ..	6,815	1,768	1,214	1,243	2,590

*Malaria.*

Malaria is general throughout the Territory. Even the healthiest stations have malarious country round them and infection is easily acquired when on tour. 329 Europeans and 2,973 non-Europeans were admitted as in-patients into Government hospitals during 1923. Two Europeans and 16 non-Europeans died of the disease.

219 Europeans and 15,220 non-Europeans were treated as out-patients. Certain stations report a considerable number of Tertian cases amongst their patients, but at Dar-es-Salaam, where the blood slides from the hospitals are examined at the Laboratory, 91.5 % were reported as sub-Tertian, and it is probable that errors of diagnosis, particularly by Sub-Assistant Surgeons and Compounders, are responsible for a large proportion of the cases returned as Tertian Malaria.

The following table shows the European malarial sickness throughout the Territory :—

District.				Area.		Sick rate per 1,000.
Moshi .. ..	}	Kilimanjaro .. ..		124		
Arusha .. ..						
Bukoba .. ..		Lake Victoria .. ..		295		
Mwanza .. ..						
Tukuyu .. ..	}	South-Western .. ..		220		
Iringa .. ..						
Songea .. ..						
Namanyere .. ..						
Morogoro .. ..	}	Central Railway .. ..		410		
Dodoma .. ..						
Tabora .. ..						
Kigoma .. ..						
Tanga .. ..	}	Coastal .. .. .		198		
Pangani .. ..						
Bagamoyo .. ..						
Kilwa .. ..						
Lindi .. ..	}					
Dar-es-Salaam .. ..						

The greater incidence shown in the Central Railway Area during 1923 is mainly due to a large increase in the number of cases reported from Dodoma, owing to shortage of staff an Asiatic Compounder was in sole charge at Dodoma for a considerable portion of the year, and in consequence the figures submitted cannot be accepted as reliable.

#### *Blackwater Fever.*

Nineteen Europeans and sixteen non-Europeans were treated for Blackwater Fever during 1923, of these, four Europeans and three non-Europeans died, a death rate of 21 per cent. and 19 per cent. respectively.

Nine cases were treated in the European Hospital, Dar-es-Salaam, during the year. A brief account of each is as follows :—

1. Mr. C., British, a Railway Official, was admitted on 3rd May, 1923. He acquired Blackwater Fever on the train while proceeding from Tabora to Dar-es-Salaam, prior to going on leave. He had been resident in Tabora for many months. He proceeded to Europe after being in hospital for forty-six days. His blood examination on admission was negative. Hepatic enlargement and Bilious vomiting were a feature of his illness.

2. Mr. W., a non-Official, was admitted on 4th February 1923. He was transferred from Morogoro to Dar-es-Salaam with Blackwater Fever. For several days before transfer he had almost complete suppression of Urine—passing a few drachms daily. He recovered from suppression to die from a relapse of Malaria six days after admission—his blood showing sub-Tertian parasites during the relapse.

3. Master T, aged 13 years, the son of a non-Official in Dar-es-Salaam, was admitted Blackwater Fever on 21st June 1923. A feature of interest in his case was the fact that he had four relapses, in each case the relapse following the administration of Quinine. He was discharged after twenty-three days in hospital. His blood examination on admission showed the presence of Crescents.

4. Mr. F., a Goan cook, employed in Dar-es-Salaam, developed a very mild attack of Blackwater Fever. A feature in this case was that the patient walked to hospital after the onset of the disease. He was discharged cured after twenty-two days in hospital. His blood examination was negative for Malaria, but a person with whom he lived harboured Crescents.

5. Mr. V., Goan, a clerk employed in the Treasury, Dar-es-Salaam, developed Blackwater Fever on 5th July, 1923, and was discharged after twenty-seven days in hospital. He developed Blackwater Fever after special treatment with Quinidine for Malaria (sub-Tertian).

6. Mr. G., a clerk in the Public Works Department, Tabora, developed Blackwater Fever on 12th July, 1923, in Dar-es-Salaam, two days after arrival from Tabora. He was discharged cured after thirty days. Blood examination was negative for Malaria.

7. Mr. R., Goan, non-Official, developed Blackwater Fever in Dar-es-Salaam on 24th August, 1923, two days after his arrival from Morogoro. He died on 27th August, 1923, from exhaustion following intense blood destruction. He had also developed suppression of Urine. His blood examination showed sub-Tertian parasites.

8. Mrs. B., a Syrian, developed a very mild attack of Blackwater Fever on 6th August, 1923, in Dar-es-Salaam. Her blood examination showed sub-Tertian parasites.

9. Mr. De J., Dutch, developed Blackwater Fever on 29th November, 1923. This patient was 62 years of age. He had one previous attack of Blackwater Fever 45 years earlier. He recovered. He developed the disease at a place 6 miles from Dar-es-Salaam. His blood examination was negative for Malaria.

Thus, of the above nine cases of Blackwater Fever, five were Europeans and four were Goan. Of the European cases one died (non-Official) and four recovered. Only one of the European patients was an Official.

Of the Goan cases, one died (non-Official) and three recovered. Two of the Goan cases were in Officials and two in non-Officials.

Of the total cases, four were contracted in Dar-es-Salaam, 2 in Morogoro, two in Tabora, and one in the neighbourhood of Dar-es-Salaam (5 miles distant).

All the patients were irregular Quinine takers.

#### *Cases of Blackwater Fever at Tabora—Two European Officials.*

1. Mr. H., Inspector of Police, in hospital from 23rd April 1923 to 23rd May, 1923.

A severe but straightforward case; was admitted on the 23rd April for Malaria; had a rigor, and hæmoglobinuria on the 24th. Urine cleared up within twenty-four hours, but the temperature reached 102° F. daily for two weeks. It was only on the exhibition of Quinine, grs. 30 daily, that it became normal. He made a good recovery.

2. Mr. E., District Engineer, Railways. In hospital 1st May, 1923 to 20th May, 1923.

A very mild case: his Urine cleared after twelve hours, but because of his temperature, which was considered malarial, he was given 2½ grs. of Quinine, four hourly, on May 3rd.

Hæmoglobinuria recurred on May 4th, but quickly cleared up again. On May 13th, Quinine, gr. 1 daily, increasing by gr. 1 every third day, was begun. Eventually he made a good recovery.

He had Blackwater Fever on the West Coast in (?) 1918 (Sierra Leone).

#### *Two European—General Population.*

One was a Greek who had hæmoglobinuria for only about eight hours after taking 10 grs. of Quinine for an attack of Malaria. With rest and rectal salines he had no recurrence, and made an uninterrupted recovery.

The other was Mrs. H., aged 19 years, born in Rhodesia. She had had many attacks of Malaria there, and during her 18 months' residence in Dar-es-Salaam had numerous mild attacks of Malaria, lasting about one day.

On admission she was very anæmic. In spite of rectal saline and glucose two hourly, and large quantities of soda-water, followed by soda and milk, the hæmoglobinuria continued for seven days.

On the third day she was given Calcium Chloride gr. 1 hypodermically, and on the same day she received, on two occasions, a transfusion of 50 ccs. of citrated blood.

On the fifth day (her temperature had remained at 103° F.) it was felt necessary to give her Quinine.

She took Ferri et Quin. Cit.	grs. X.
Liq. Strych.	m. IV.
Quin. Bihydroch.	grs. IIss., 4 hourly.

The dose of Strychnine was large, but she showed no signs of poisoning, and improved daily.

She was only partly conscious for three days and was not aware of the transfusion.

She eventually made a good recovery.

*Three Asiatics.*

Miss D., 15 years, Goanese, had a very mild attack. Hæmoglobinuria lasted only twelve hours, and cleared up with rectal salines, and she made an uneventful recovery.

Mr. X., 54, Goanese, had been fifteen years in the Territory without leave, and had suffered much from Malaria.

He had been drinking heavily for six weeks, and taking very little food before admission. No fever attack, but he "felt uneasy-like" on November 28th, and took grs. 10 of fluid Quinine. About 11 p.m. on the 29th, he had a rigor lasting one hour, and at midnight he passed some black water. Quite thirty hours had intervened between the taking of the Quinine and the rigor. He walked into the hospital at 3 p.m., on the 30th. His Urine after that contained only a trace of albumen, but he gradually sank, and died from heart failure on the morning of the 1st December.

Mr. G., 20, Indian, had suffered from many slight attacks of Malaria, and took "occasional small doses of Quinine."

On June 8th, at 7 a.m., he took a 5 gr. tabloid of Quinine bihydroch. He rested all that day, and at 3.30 p.m. he had a rigor of 2 hours' duration. At 5.30 p.m. he had passed Urine almost black.

He was admitted to hospital the same day at 9 p.m. Temperature on admission was 106° F. He was very obstreperous, delirious all the time, and his stomach could retain nothing. He was given rectal salines containing 10 per cent. glucose, but these were returned almost immediately, as he had to be forcibly restrained while they were given. Saline was also given subcutaneously, but so much struggling was caused that it was felt that the patient was receiving no benefit, because of the energy he himself expended. In the end, saline proctolysis (with a catheter introduced 10 inches into the rectum) was tried, but even this failed, as the catheter had to be held in situ, and the patient restrained at the same time.

The Urine did not clear up at all, and he died twenty-three hours after the onset of illness.

Twenty-three reports on the forms drawn up by the sub-committee of the Medical and Sanitary Advisory Committee have been received and are included in this Report as a separate Appendix.

REPORT ON MALARIA AND BLACKWATER FEVER BY T. H. SUFFERN, M.B., CH.B., B.A.O.  
(ROY. UNIV., IRELAND), SENIOR MEDICAL OFFICER, TANGA.

Among Europeans there were 54 cases of Malaria and no deaths.

Among Asiatics and Natives, 1,151 cases were diagnosed as Malaria. There were no deaths.

Among Europeans one case of Blackwater Fever was treated. The patient was a woman, aged 45 years, who was brought into hospital a week after suppression of urine had set in and died of Uræmia two days after admission. There was also a case shewn in the returns as Bright's disease. This was an interesting case of Nephritis or damaged kidneys following on Blackwater. The patient was a Dane, male, age 28 years. He got over his Blackwater and had no suppression. Apparently, however, he did not pick up and seven days after the Hæmoglobinuria ceased he became puffy and œdematous. He was sent down to hospital the same day. The patient was in the typical post-Blackwater condition of Anæmia and weakness. His eyes were almost closed with the œdema and he showed signs of Uræmia. He was passing daily over 30 ozs. of clear Urine containing a cloud of Albumen. Uræmic symptoms became marked and patient died four days after admission to hospital.

No cases of Blackwater were treated among Asiatics and Natives.

HUMAN TRYPANOSOMIASIS IN THE MWANZA DISTRICT.

The Principal Medical Officer visited the Sleeping Sickness area in September and October, 1923, and this summary is compiled from the record of his tour and from the reports received from time to time from Dr. Maclean, who, as Medical Officer of Mwanza, has visited the area as often as circumstances permitted. The country involved lies to the east

of Mwanza and is well shown in the map published in Volume XIII., part 3 of the Bulletin of Entomological Research, to illustrate Mr. Swynnerton's paper published in that Journal. The only area in which, so far as is known, infection is acquired is approximately demarcated on the west and south by the Simiyu River as far as longitude  $34^{\circ}$  E., and on the east by a line drawn from this point northward to Itongo on the shores of Lake Victoria, these boundaries enclosing an area of about 150 square miles.

The fly infested forest has somewhat indefinite boundaries. It is a mass of forest or bush, continuous South and North-east with other "belts," and containing many large and small open spaces and some small hills projecting clear above the trees. From the main mass long finger-like extensions push their way out into the lower lying portions of the surrounding open country.

The inhabitants of the area live in family groups of two or three huts situated in "Bomas," fenced with Euphorbia. A village (Gunguli) consists of a number of Bomas spread over an area three or four miles square. These villages are now situated in open spaces. The deserted villages in the evacuated area were of the same type, but situated in open glades or small clearings closely surrounded by forest. This form of settlement gives great protection against the spread of any infectious disease, each family being segregated, though no doubt, a good deal of visiting takes place between members of the same village community.

Dr. Davey, during his tour, found the country rich in game. He states that the hard, sun-baked ground of the forest is a network of tracks of zebra, mpala, topi, giraffe, etc., and natives everywhere reported much damage done to crops by these animals. Game was uncommon in the open country, but at the time of his visit the country was dried up and large herds of cattle in extremely poor condition were finding difficulty in getting enough grazing to keep alive.

Near the Simiyu River the Principal Medical Officer set aside one day for shooting, and although he did not leave camp between the hours of 8.30 a.m. to 4.30 p.m., shot two zebra, four topi and a duiker. The shooting of the duiker disturbed more zebra and Dr. Davey states that at no time during his journey was he more fiercely attacked by tsetse than on this evening immediately after shooting the duiker. This agrees with Lamborn's remark with reference to *G. morsitans* that "It is a frequent experience that an abundance of flies usually indicates the presence of game or that game has recently been in the neighbourhood." On three out of the four occasions on which Dr. Davey left camp in the evening with a rifle, zebra or antelope were seen. Mr. Edwards, the District Agricultural Officer, mentioned the abundance of game he had seen on a visit to the Simiyu River twelve months earlier, while Dr. Maclean, who has made frequent tours of the area at all seasons during the past eighteen months, has no doubt as to the abundance.

The Principal Medical Officer has laid great stress on the presence of considerable quantities of game and suggests that the scarcity of game—amounting to practical extermination—which Mr. Swynnerton reported must have been a purely temporary and local phenomenon. He is unable to accept the statement that the experiment in game destruction has been carried out in the area for practical purposes or that for lack of game fly has been driven to feed on man.

There were enormous numbers of cattle, sheep and goats in all the open country, and some were grazed in what appeared to be dangerous proximity to the fly area. Several herds were inspected and blood examinations made of a few beasts in poor condition; on no occasion were trypanosomes found.

Both Dr. Duke and Mr. Swynnerton were of opinion that starvation and ankylostomiasis were of importance as pre-disposing causes. No doubt the famine of 1919 caused a very considerable lowering of the vitality of the local population. Dr. Davey in his tour during September and October, 1923, found the natives, on the whole, well nourished. Anæmia, except amongst nursing mothers, was uncommon, and the population as a whole showed no signs of a heavy ankylostome infection. Of thirty persons selected as being anæmic, from natives collected for examination for Sleeping Sickness, only four showed Ankylostome ova. In the stools of twenty-seven apparently healthy individuals, no Ankylostome ova were found. It is admitted that these examinations were done under unfavourable circumstances, but the Principal Medical Officer is of opinion that the findings do not bear out the supposition that the incidence of Ankylostomiasis is heavy.

The observations made during 1923 confirm the opinion expressed in the Annual Report for 1922 that the vector of the disease is *G. swynnertoni* and the causal trypanosome *T. rhodesiense*.

The Principal Medical Officer states that the symptoms and course of the disease are those of the Nyasaland type of Sleeping Sickness though, possibly, somewhat less acute. The presence of numerous trypanosomes in the peripheral circulation is a feature common to both forms and distinguishes them from Sleeping Sickness of the Uganda type.

The incubation period appears to be a short one. Definite histories are always very difficult to obtain from native patients, but statements were frequently made that the illness commenced about a week or ten days after a journey into the forest where the patient was exposed to bites from tsetse flies.

The inset is often sudden with high fever. After the initial pyrexia has subsided it is not uncommon for the infected person to show no symptoms of disease for some weeks, although trypanosomes are numerous in the peripheral circulation. These persons have been referred to as "carriers" in some of the reports on the Mwanza outbreak and are a grave source of danger as they frequently make long journeys through fly-infested country before the disease causes them any inconvenience. Several of these cases were discovered when the outbreak was first investigated in 1922. Dr. Maclean has been able to follow up the majority of these, and reports that all had succumbed to the disease by October, 1923.

Forty cases were diagnosed microscopically between January and October, 1923. Careful enquiries were made into the previous history of thirty of these with a view to determining the source of infection. The Principal Medical Officer came to the conclusion that, in these cases, infection was acquired in the following manner:—

Journey through the forest shortly before onset of illness	...	...	11
Visiting forest for rope, hut poles, etc.	...	...	8
Hoeing gardens actually in the forest	...	...	7
Hoeing gardens on the borders of the forest	...	...	3
Living in the forest when illness commenced	...	...	1
			—
			30
			==

Of twenty-six cases, who dated the onset of their disease between January and October, 1923, nineteen stated that the earliest symptoms occurred in the first four months of the year, a period during which much hoeing and planting is undertaken.

The distribution of the cases in 1922 and 1923 is of considerable interest. In 1922 the majority of the cases occurred in the Sultanates of Itilima, Sengerema and Usmao, in the neighbourhood of the Simiyu river and in the Ntusu Sultanate. In 1923 Itilima had two cases, Sengerema and Usmao none, while twenty-two were reported from Ntusu. In his June report Dr. Maclean states that the instructions issued by the Senior Commissioner on the subject of the removal of villages and gardens from the neighbourhood of the forest had been very imperfectly carried out in Ntusu and that villages were situated on the edge of the forest and that natives made frequent visits to their old gardens in fly-infested forest.

The removal of the natives from the neighbourhood of the forest appears to have checked the disease in Itilima, Sengerema and Usmao. There does not, however, seem to have been any marked diminution during 1923 in the total number of deaths from Sleeping Sickness in the whole of the infected area. During 1922, ninety-two deaths were attributed by the Medical Department to Sleeping Sickness. In 1923, Dr. Maclean diagnosed forty cases by microscopic examination, while the records of patients admitted to Sleeping Sickness camps leave little doubt that nine patients died of the disease before their blood was examined.

In comparing the totals of ninety-two and forty-nine for 1922 and 1923, Dr. Davey points out that it is certain that a number of cases in both years would never be brought to the notice of the Medical Department. During 1922, the removal of 5,000 natives from the fly forest must have discovered cases which would otherwise have escaped detection, moreover, during 1922, when the outbreak was first discovered, several persons were engaged in searching for cases. In 1923 the Sub-Assistant Surgeon in charge of the camps had to be replaced by an Indian Compounder and pressure of work at Mwanza prevented Dr. Maclean visiting the area oftener than about once every three months, consequently it is probable that the percentage of cases recognised was higher during 1922 than in 1923.

The treatment given up to September, 1923, was, in the majority of cases, Soamin gr. XII., with intervals of ten days between injections. In a number of cases Trypanosomes disappeared from the peripheral circulation and the patients were allowed to leave the camp apparently in good health.

Several of these cases were re-examined by the Principal Medical Officer and Dr. Maclean during their tours. They had been released from hospital months before when trypanosomes could no longer be found in their blood. Dr. Davey states: "We failed to find trypanosomes in the blood of all but one, but I fear they are slowly going downhill and probably the trypanosomes have reached the central nervous system. Injection of their blood into monkeys would, I think, give positive results."

The Principal Medical Officer took with him to the area a supply of Bayers 205. Three doses of one gramme each were given at intervals of ten and eighteen days. It is too early to form a definite opinion of the value of this treatment. Dr. Thomson, who has relieved Dr. Maclean, reports that trypanosomes have been found in two cases after their third and last injection of Bayers 205. The trypanosomes were scanty and both patients had showed very marked improvement after their injections. Instructions will be issued to increase the dose for well nourished patients, the dose being decreased in young or debilitated persons.

The Principal Medical Officer ends his report with certain conclusions and recommendations, a brief summary of which follows.

The disease has shown no tendency to assume true epidemic proportions and a violent epidemic need not be apprehended. The known distribution of Rhodesian Sleeping Sickness is gradually being extended, it seems probable that the disease will be found wherever game, infected with the brucei form of trypanosome, human beings and glossina of the morsitans type are brought into contact in large numbers. Other fly infested areas in the Territory should be investigated for Sleeping Sickness. The Medical Officer appointed for this duty should make every effort to gain the confidence of the natives, and with this object in view should travel independently and slowly and treat, as far as possible, all forms of illness.

The villages having been removed from the fly area it remains to prevent the native entering the forest except for necessary purposes, such as cutting large poles for house building. The Principal Medical Officer suggests that any native wishing to enter the forest should first obtain a permit from his Sultan and that guards should be placed on the cleared roads to arrest any person crossing the road and entering the forest without a permit.

#### *The Maintenance of the Clearings along Main Roads.*

The Principal Medical Officer suggests that some return for the expenditure of time and labour would be obtained by the natives if cotton or other crops were planted along the road sides. This would necessitate permission being given to the natives to destroy game damaging these plantations.

#### *The Destruction of the Fly by Extension of Cultivation.*

This demands a largely increased population, which can only be obtained by improvement in the general health of the natives. An increased Sanitation staff is necessary for the prevention of avoidable mortality and for the suppression of infectious diseases.

#### INFLUENZA.

Influenza was responsible for a considerable mortality in the Southern and South-Western districts of the Territory. In May, reports were received that epidemic Influenza of a moderately severe type was present near our southern borders and was spreading northwards. Instructions were issued to restrict the movement of natives as far as possible and funds provided to place guards on the roads.

A Departmental Circular containing advice on prevention and treatment was sent to all stations and supplies of vaccine despatched to the Medical Officers in charge of the more important towns. Although infection did reach the Territory from neighbouring countries, the resulting epidemic did not become formidable and was mainly confined to the districts immediately adjacent to the Southern and South Western boundaries. In these districts, 1,142 cases with 138 deaths occurred during the year.

In the other parts of the Territory only two outbreaks of any magnitude were reported. In the middle of the year a very mild epidemic broke out in the Moshi and Arusha districts. 402 cases with no deaths were notified.

The remaining outbreak began in November around Singida in the Dodoma district and continued up to the end of the year. The total number of cases and deaths reported up to the end of December was 359 and 151. The district is a scattered one and these figures are obtained almost entirely from native information. While it is probable that the number of deaths is fairly accurate, it is certain that large numbers of the milder cases would not be notified.

Throughout the whole Territory 1,933 cases with 291 deaths were reported during 1923.

#### PLAGUE.

A few cases of Plague occurred in the endemic areas of Singida and Shirati, a total of 39 cases with 26 deaths being reported throughout the year. In January, four fatal cases were reported from Musoma, a small Port on Lake Victoria, about 20 miles South of Shirati. The small township is well built and very clean, and the energetic measures instituted on the spot prevented any spread of the disease, no more cases being reported during the year. The origin of the outbreak could not be discovered. During the month of June suspicious deaths were reported from the neighbourhood of Shirati. The outbreak was investigated by Dr. Maclean, the Medical Officer of Mwanza. In his report he stated that the district affected covered an area of 10 to 12 square miles, the population being approximately 1,000. Scattered cases occurred throughout the whole of this area, one or two huts in each small village being infected while the inhabitants of the remaining houses escaped altogether. Dr. Maclean was informed by the local natives that a considerable mortality amongst the rat population took place about one month before the first human cases occurred. Although microscopical confirmation was not obtained, there seems to be no doubt that the disease was bubonic plague. Twenty cases with twelve deaths were reported.

Careful enquiries were made in order to trace the original source of infection. The local natives were of opinion that the disease was not introduced from the endemic areas over the Kenya border. The fact that the Sultanate of Busieri, stretching for a distance of approximately 9 miles between Shirati and the Kenya border was not affected, tends to show that the outbreak was of local origin. Under Dr. Maclean's directions, infected houses were unroofed, rat hunts organized, and a large proportion of the inhabitants inoculated. These measures were quite effective and no further cases were reported during the year. Dr. Maclean, in the course of his investigations, discovered that the local conception of "Plague" is a malignant abscess or boil, single or multiple, which is associated with malaise, and which, unless treated, generally ends fatally in a few days. The natives recognised two distinct forms; one is associated with a fatal disease in rats, usually shows abscess formation, but in rare cases causes a general disturbance only. The second form is recognised as being due to eating diseased meat, either raw or imperfectly cooked. The diseased animal, usually a goat, suffered from severe constitutional disturbance which ended fatally in about twenty-four hours. Dr. Maclean is of opinion that the first form is true bubonic plague, while the second is almost certainly anthrax. In the Singida endemic area, 15 cases with 10 deaths were reported throughout the year. The natives in this district live under the worst possible conditions. They do not build the ordinary type of hut thatched with grass which can be unroofed easily and the interior exposed to sunlight. The native dwellings are roofed with beaten earth and are occupied by human beings, cattle and goats, they are also used as grain stores. Efforts have been made for years, both by the German and British Administrative Officers, to induce these natives to improve the Sanitary conditions under which they live, but with little success. No great improvement can be expected in the immediate future, and it appears possible that this district will remain an endemic plague area. The natives appreciate the connection between rats and Plague and large numbers of rats have been destroyed during the year. A Sub-Assistant Surgeon is stationed in the district and makes frequent tours of inspection in the course of which 7,595 natives have been inoculated. At no period of the year did the disease show any signs of becoming Epidemic.

Two alarming outbreaks of fatal infectious disease occurred in March, 1923, one at Kiniassi, about 40 miles from Kondoa-Irangi and the other at Lolkissali, about 50 miles South-west of Arusha. Owing to the shortage of trained observers, neither of these outbreaks was properly investigated. The outbreak at Kiniassi was confined in two villages, Kiniassi and Maloya, situated about two miles apart, and, according to native reports, was preceded by a considerable mortality amongst the rat population. Two of the villagers had visited Arusha in order to earn their poll-tax and had worked for local traders by carrying loads between Arusha and Moshi. Shortly after their return home they both sickened and died after an illness of two days from what was stated to have been Pneumonia; nine days afterwards two contacts died after an illness which also lasted only two days. In all, 17 cases with 16 deaths occurred between March 9th and March 26th after which no further cases were reported. The majority of the patients had swellings in the groin, axilla or neck, which in the majority of cases did not suppurate. The one case that survived had a large abscess of the neck. The pus from this was examined microscopically, but no Plague bacilli were detected. Enquiries were made as to previous epidemics of a similar nature and the Administrative Officer reported: "It appears that 36 people died within a short period during last year (about June, 1922). The issue was obscured by Influenza in the district and further by the fact that the old men accused a resident of witchcraft. In their anxiety to cancel their offence they did not report the number of deaths."

The epidemic of Lolkissali, which is about 60 miles North-east of Kiniassi occurred amongst an isolated Masai community living in three bomas in the native reserve. Between March 8th and March 20th forty persons were attacked, the symptoms in each case being fever, great prostration, cough with bloodstained sputum, and death on the 3rd or 4th day of the disease. The epidemic stopped as suddenly as it began and no further cases were reported after March 20th. It was most unfortunate that no Medical Officer was available to investigate this outbreak which presents several puzzling features. The Masai are a clannish tribe and do not welcome visitors. The affected villages were 15 miles from a road and many miles from any other natives, and it is difficult to understand how infection could be introduced from outside. The disease was stated to be intensely infectious, one visit to an infected hut being sufficient to contract the disease, yet in one of the bomas only two cases occurred. Two young men from here had visited an infected boma "to drink beer," they returned to their own homes, sickened and died, yet no other cases occurred in their village.

During the fortnight that the epidemic lasted, nearly half the total population of these villages died, every case being fatal. The Influenza pandemic of 1918 had taken a heavy toll of these natives and they were emphatic that the present outbreak was a different disease. There are very few rats in the Masai dwellings and the natives had not noticed any abnormal death rate amongst them. The Masai own large herds of cattle and live in intimate contact with them. No anthrax has been reported in this district for some years, but an outbreak of Contagious Bovine Pleuro-pneumonia was present at Lolkissali when this epidemic amongst human beings took place.

It appears probable that the deaths at Kiniassi and Maloya were due to Plague, but the causative agent at Lolkissali is obscure and the diagnosis seems to lie between Influenza, Pneumonic Plague, or some cattle disease which was conveyed to man. It was quite impossible at this time for the Medical Officer, Arusha, to leave his station and consequently no pathological material was available for examination. It is in cases such as this that the necessity of an increase in the staff of the Sanitation Branch becomes apparent.

During August, rats infected with Plague were found on Mombasa Island and a few cases of the disease occurred amongst natives. Strict orders were sent to all the seaports of the Territory that all dhows and vessels from Mombasa were to be examined carefully before the cargo could be landed. No cases of Plague, either in human beings or rats, have been detected up to the end of the year.

## SMALL-POX.

The diminution in the Small-pox incidence throughout the Territory has continued during 1923. The figures for the last four years are given in the table below :—

Year	Cases.
1920	832
1921	1,267
1922	390 (150 doubtful cases, probably severe Chicken Pox.)
1923	217

Nearly half the cases during 1923 occurred in the Tanga district, 98 cases with 10 deaths being notified. The majority of these were reported from the neighbourhood of Bwiti and Moa, near the Kenya border. There was no serious epidemic, but sporadic cases occurred throughout the year. The district is somewhat inaccessible and it was considered possible that the native vaccinators stationed there were neglecting their duties. In consequence, Dr. Nixon, the Medical Officer of Health, Tanga, was instructed to pay a surprise visit and examine a number of natives in the infected area. The visit was made in August and 250 natives examined. These were residents of villages, situated both on the hills and in the plains, in which Small-pox had recently occurred.

The result of his examination is given below :—

Scars of successful vaccination	...	...	...	...	59 %
Scars of modified vaccination	...	...	...	...	21 %
Scars of previous Small-pox	...	...	...	...	4 %
No scars	...	...	...	...	16 %

Taking into account the inaccessibility of the district and the impossibility of adequate European supervision, this must be regarded as a satisfactory degree of protection.

A series of small outbreaks occurred in the north-western area of the Tabora district. Sixty-three cases with twelve deaths being reported during the year. (Reports received early in 1924 show that this outbreak was more severe than was at first reported, 149 cases with 38 deaths are stated to have occurred).

The remaining fifty-six cases were widely distributed throughout the Territory, the only part from which no cases were notified being the western area composed of the districts of Ujiji, Ufipa and Rungwe. The distribution is shewn in Table VIII., on p. 96 of this Report.

## DYSENTERY.

Dysentery is distributed throughout the whole Territory, but is, as a general rule, of a mild type. The only station from which no cases were reported was Tunduru, a small station near the Southern border of the Territory, which is in charge of a Compounder.

A great improvement in the classification of Dysentery is noticeable since the distribution of a circular on the subject, drawn up with the assistance of the Director of the Laboratory, which was sent out to all stations early in 1923.

The total number of cases reported was 293, which can be classified thus :—

*Out-Patients.**In-Patients.*

	Europeans.	Non-Europeans.	Europeans.		Non-Europeans.	
			Cases.	Deaths.	Cases.	Deaths.
Amoebic ..	7	40	24	0	105	5
Bacillary ..	1	28	5	1	40	0
Unclassified ..	5	35	0	0	3	0
Total	13	103	29	1	148	5

The only European death took place at the European Hospital, Dar-es-Salaam. The patient was a non-official who was admitted in a very exhausted condition, having been without medical attention for a fortnight.

TABLE VIII.

INCIDENCE OF PRINCIPAL INFECTIOUS DISEASES DURING 1921, 1922 AND 1923.

DISTRICT.	Small Pox.						C.S.M.				Population.		
	1921		1922		1923		1921		1922			1923	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.		Cases.	Deaths.
NORTHERN AREA.													
Bukoba	14	—	7	—	11	9	—	—	—	—	9	6	
Mwanza	33	1	—	—	—	—	—	—	—	—	90	82	
Arusha	3	—	6	2	2	—	—	—	—	—	1	1	
Usambara	—	—	—	—	3	—	—	—	—	—	—	—	
Moshi ..	—	—	—	—	—	—	6	3	—	—	1	—	
CENTRAL AREA.													
Tabora	21	—	84	14	*63	12	1	—	4	—	—	—	
Dodoma	—	—	3	2	1	—	1	1	—	—	—	—	
Kondoa-Irangi	—	—	—	—	1	—	—	—	2	—	—	—	
Morogoro	10	1	11	2	1	—	—	—	—	—	—	—	
SOUTHERN AREA.													
Iringa ..	—	—	—	—	—	—	—	—	—	—	—	—	
Mahenge	—	—	—	—	—	—	—	—	—	—	—	—	
Songea	802	29	—	—	10	—	—	—	—	—	—	—	
WESTERN AREA.													
Ujiji ..	—	—	13	5	—	—	—	—	1	—	—	—	
Ufipa ..	—	—	—	—	—	—	—	—	—	—	—	—	
Rungwe	48	7	—	—	—	—	—	—	—	—	—	—	
COASTAL AREA.													
Tanga ..	281	91	84	14	98	10	—	—	—	—	—	—	
Pangani	9	—	1	—	2	—	2	—	1	—	—	—	
Bagamoyo	2	2	1	—	1	—	1	—	1	1	—	—	
Dar-es-Salaam	3	—	1	—	—	—	—	—	—	—	—	—	
Rufiji ..	—	—	150	2	8	—	—	—	—	—	—	—	
Kilwa ..	—	—	9	4	13	2	—	—	—	—	—	—	
Lindi ..	41	20	4	—	3	—	—	—	—	—	—	—	
Mafia Island ..	—	—	16	1	—	—	—	—	—	—	—	—	
Totals	1,267	151	390	46	217	33	17	4	9	6	101	89	

\* From reports received early in 1924, it appears that the outbreaks in the remote North-Western Area of this district were more severe than at first reported. The Senior Medical Officer, Tabora, now estimates the number of cases and deaths as 149 and 38.

TABLE VIII.—*continued.*

INCIDENCE OF PRINCIPAL INFECTIOUS DISEASES DURING 1921, 1922 AND 1923—*continued.*

DISTRICT.	Plague.						Influenza.				Population		
	1921		1922		1923		1921		1922			1923	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.		Cases.	Deaths.
NORTHERN AREA.													
Bukoba ..	21	14	6	2	16	—	—	1	—	—	—	—	
Mwanza ..	—	—	—	—	—	—	—	6	1	—	—	—	
Arusha ..	—	—	—	—	—	42	—	66	6	—	—	—	
Usambara ..	—	—	—	—	—	—	—	—	—	—	—	—	
Moshi ..	—	—	—	—	—	—	—	—	—	—	—	—	
CENTRAL AREA.													
Tabora ..	—	—	15	15	—	261	1	28	1	3	2	—	
Dodoma ..	—	149	30	23	10	—	8	3	—	359	151	—	
Kondoa-Irangi ..	—	—	1	—	—	—	—	14	—	—	—	—	
Morogoro ..	—	—	—	—	—	—	—	107	9	—	—	—	
SOUTHERN AREA.													
Iringa ..	—	—	—	—	—	12	4	481	18	—	—	—	
Mahenge ..	—	—	—	—	—	—	—	16	—	26	—	—	
Songea ..	—	—	—	—	—	73	21	3	1	141	—	—	
WESTERN AREA.													
Ujiji ..	—	—	—	—	—	—	—	2	—	—	—	—	
Ufipa ..	—	—	—	—	—	—	—	—	—	217	23	—	
Rungwe ..	—	—	—	—	—	227	49	23	1	—	—	—	
COASTAL AREA.													
Tanga ..	—	—	—	—	—	—	—	20	—	—	—	—	
Pangani ..	—	—	—	—	—	—	—	1	—	—	—	—	
Bagamoyo ..	—	—	—	—	—	67	4	34	—	—	—	—	
Dar-es-Salaam ..	—	—	—	—	—	31	—	371	—	—	—	—	
Rufiji ..	—	—	—	—	—	—	—	—	—	—	—	—	
Kilwa ..	—	—	—	—	—	—	—	—	—	—	—	—	
Lindi ..	—	—	—	—	—	6	26	—	—	—	—	—	
Mafia Island ..	—	—	—	—	—	—	—	—	—	784	115	—	
Totals ..	?	163	52	40	39	26	?	1,176	37	1,933	291	4,116,000	

### ANKYLOSTOMIASIS.

Ankylostomiasis is common in the coastal area, particularly in the neighbourhood of Tanga. 2,459 cases with 67 deaths were reported throughout the Territory during the year. Of these, 2,168 with 57 deaths were treated at Government hospitals in the coastal towns. The greatest number of cases were treated at Tanga hospital, 78 in-patients and 1,467 out-patients being reported. The Medical Officer of Health, Tanga, gives frequent lectures to the pupils at the Government School, Tanga, and explains the mode of infection. It is hoped that propaganda of this nature will result in improved village sanitation and a diminution in the incidence of the disease.

### LEPROSY.

No important changes have been made during 1923 in the arrangements for the segregation and treatment of lepers.

In June, a circular was sent to all Administrative Officers in charge of districts, asking for particulars of the leper camps under their control and also for an estimate of the number of lepers in the district who were not segregated. The reports received are shown in Table IX., p. 99.

While the particulars of the leper camps can be taken as approximately correct, the estimates of the lepers not segregated must be accepted with reserve. The figures given are obtained from native sources or framed on observations made by Administrative Officers while on tour in their districts. In either case the observers are untrained and must find considerable difficulty in distinguishing Leprosy from the later manifestations of Syphilis and Yaws. The total number of lepers segregated in camps is 3,299, while the number of non-segregated lepers is estimated as 8,181, giving a total for the whole country of 11,480. These figures give a Leprosy incidence rate of 8 per 10,000 for known lepers and of 28 per 10,000 for known and estimated lepers combined. The figures 70 per 10,000 given on p. 100 of the Annual Report for 1921 are obviously incorrect and should have been 7 per 10,000.

Taking the figures for segregated lepers only the most highly infected area is Mahenge with an incidence of 67 per 10,000, while the lowest is Arusha, where no cases of Leprosy are known.

If the numbers of segregated and non-segregated lepers are combined, Mahenge shows an incidence of 69 per 10,000 and Tabora 62 per 10,000.

Segregation is practically voluntary at the present time, caretakers are appointed for each camp, but an uncrippled leper would have no difficulty in escaping. The camps are, in many cases, surrounded by large areas of ground which the able-bodied cultivate to provide a proportion of the food for the inmates. The cost of enclosing these settlements with escape-proof fences would be prohibitive. To concentrate the lepers in large central hospitals, properly staffed and equipped, would entail an expenditure on buildings, salaries and maintenance quite beyond the financial resources of the Territory.

TABLE IX.

NUMBER OF LEPER CAMPS IN EACH DISTRICT WITH NUMBER OF LEPERS SEGREGATED AND  
ESTIMATED NUMBER OF LEPERS NOT SEGREGATED.

DISTRICT.	Number of Camps.	Number of Leper Segregated.	Estimated number of Leper not Segregated.	Population.
NORTHERN AREA.				
Bukoba .. .. .	7	95	—	320,000
Mwanza .. .. .	—	—	2,000	702,300
Arusha .. .. .	—	—	—	97,700
Usambara .. .. .	1	60	—	107,400
Moshi .. .. .	1	22	—	158,200
CENTRAL AREA.				
Tabora .. .. .	2	134	3,000	502,100
Dodoma .. .. .	1	61	—	270,900
Kondoa-Irangi .. .. .	—	—	930	196,700
Morogoro .. .. .	6	621	—	174,300
SOUTHERN AREA.				
Iringa .. .. .	1	50	6	104,800
Mahenge .. .. .	2	497	20	74,600
Songea .. .. .	2	310	—	148,200
WESTERN AREA.				
Ujiji .. .. .	—	—	207	139,500
Ufipa .. .. .	3	128	116	93,600
Rungwe .. .. .	1	718	800	237,200
COASTAL AREA.				
Tanga .. .. .	1	22	200	86,700
Pangani .. .. .	—	—	—	74,900
Bagamoyo .. .. .	1	80	—	57,100
Dar-es-Salaam .. .. .	1	77	—	149,100
Rufiji .. .. .	2	76	25	83,200
Kilwa .. .. .	7	260	250	84,000
Lindi .. .. .	2	32	627	243,400
Mafia Island .. .. .	1	56	—	10,000
Totals .. .. .	42	3,299	8,181	4,116,000

## LEGAL.

The following Ordinances and Government Notices published in the Gazette during 1923 are of importance to the Sanitation Division.

Ordinance No. 4 of 1923, "The Natural Water Supply Regulation Ordinance," gives powers to control and regulate the use of natural water supplies and enables His Excellency the Governor to appoint Water Boards for this purpose.

Government Notice No. 18 declared Kilindoni on Mafia Island to be a port.

Government Notices Nos. 47, 48, 49 published the new Township Rules and brought them into force on April 1st, 1923, and also appointed the Presidents, Members and Executive Officers of the Township Authorities. This question is discussed more fully under the heading "Urban Sanitation," on p. 46 of this Report.

Government Notice No. 69 contained a list of 47 areas which had been declared Townships. Proclamations Nos. 4 and 6 added Kilindoni, Chole and Muheza to the list and defined their boundaries.

Government Notice No. 131 introduced an amendment into Rule 6 (b) of the Rules made the Ports Ordinance, 1921. This amendment was necessary as it was found that no powers existed to punish persons swimming ashore from dhows before pratique had been given.

Government Notice No. 132 declared Tuberculosis to be a notifiable infectious disease.

Ordinance No. 23 of 1923, "The Native Liquor Ordinance," controls the sale of native liquor in Townships.

General Notice No. 164, amended Rule 84 of Township Rules, 1923, and substituted two new Rules regulating the sale of local produce in Townships.

Ordinance No. 25 of 1923, "The Native Authorities Ordinance," gives Administrative Officers wide powers which should be valuable in the future. This Ordinance is discussed more fully under "Rural Sanitation" on p. 45 of this Report.

Ordinance No. 34 of 1923, "The Customs Tariff Ordinance," lays down the duty to be paid on imported merchandise. Mosquito nets, mosquito netting and mosquito gauze, together with pipes and piping for sewerage, including manhole covers and fittings, are admitted free of duty. Rat traps, vaccine lymph and sera are also on the free list. A duty of 10 per cent. is levied on Sanitary earthenware, such as water closets, lavatories and baths.

#### CENTRAL TOWN PLANNING AND BUILDING COMMITTEE.

Fifteen Meetings of this Committee were held during 1923.

The Committee is composed of the Principal Medical Officer (Chairman), The Director of Public Works, the Land Officer, and the Senior Sanitation Officer, who is also Secretary.

The Committee is mainly concerned with the laying out of the different Townships throughout the Territory and with the siting of the Government buildings within these Townships.

The procedure to be adopted in connection with Town Planning is laid down in the following paragraphs extracted from "Standing Orders":—

"Every District Town Planning and Building Committee should be in possession  
"of a survey map of its area and environs or, in default of a map drawn by a surveyor,  
"of a diagram or plan drawn as nearly as possible to scale. The District Committee  
"of a Township shall cause to be shown on the map or plan its suggestions in regard to  
"new streets, building plots, surface drainage schemes, water supply, etc.

"The plan shall take cognisance of the necessity for open spaces, gardens, schools  
"with the necessary recreation grounds, hospitals, gaols, warders and askari lines, public  
"buildings, including mosques, cemeteries, markets, cattle markets, abattoirs, camping  
"grounds, water storage reservoirs, sanitary areas for the dumping, burning or disposal  
"of waste and rubbish, and no private interest shall be allowed to interfere with a plan  
"once laid down and approved. Consideration of present and future Traffic needs,  
"the improvement of the health of the community, and the preservation of natural  
"beauty in the landscape should be the determining factors in drawing up the general  
"plan.

"Town extension may only be permitted on reference to this definite plan after  
"approval by the Central Committee.

"The plan and recommendations of the District Town Planning and Building  
"Committee will be forwarded in the first place to the Land Officer. The Land Officer  
"with the aid of any other plans which may be in his possession will prepare the most  
"detailed plan for the Central Town Planning and Building Committee. The plan,  
"when approved by the Central Committee, will be submitted to the Governor for  
"approval.

"After approval the plan will be registered and filed, a copy being sent to the  
"District Town Planning and Building Committee concerned."

The plans of the following Townships which have been considered by the Committee were approved by His Excellency the Governor during the year.

Bahi, Dodoma, Gulwe, Itigi, Kikombo, Manyoni, Mikesse, Moshi, Ngerengere, Ruvu and Saranda.

Considerable progress has been made with the surveys of many of the larger and more important towns, and the final plans for several of these should be completed during 1924.

#### VITAL STATISTICS.

Several stations have made an attempt to provide figures on which vital statistics can be based. The returns, however, vary so widely that no reliable deduction can be made from them. The Medical Officer of Health, Tanga, has obviously gone to a great deal of trouble to analyse the reports received from the Tanga sub-districts. His figures, corrected to

compensate for a few missing returns, show an African death rate of 15.6 per 1,000, and African birth rate of 12.1 per 1,000, and an Infantile Mortality Rate of 91 per 1,000. These figures cannot be accepted as even approximately correct. In the Annual Report for 1922 statistics provided by the Senior Commissioner, Tabora, gave an Infantile Mortality Rate of 52 per cent., which is probably much nearer the correct figure.

Until registration of Births and Deaths is compulsory and reliable, no useful result can be obtained from an analysis of the returns sent in by a few districts.

#### RECOMMENDATIONS FOR FUTURE WORK.

The extension of the activities of the Sanitation Division is dependent on an increase in the staff and funds available.

It has been decided by His Excellency the Governor that the time has not yet come when the Territory would be justified in setting up a separate staff of Medical Officers of Health, and the present arrangement under which Medical Officers are seconded as Medical Officers of Health is to be continued, but it is expected that an additional officer, to be stationed at Tabora as Medical Officer of Health, will be available.

The appointment of a Medical Entomologist has been asked for repeatedly. A mosquito survey is a necessity if an anti-malarial campaign is to be successful. At the present time the varieties of anopheline mosquitoes, which are the main carriers of Malaria throughout the Territory, have not been determined. The solution of the mystery as to why Bukoba (which is surrounded by a swamp and has a sluggish lagoon in the middle of the Town) is almost free from mosquitoes, might assist the Sanitary Division in eradicating mosquito larvæ in other districts. Very large areas of the Territory are infested with tsetse fly and the position, from a medical point of view, requires elucidation. This appointment has not been sanctioned, other medical needs being considered to be more urgent.

Two other appointments which are considered to be of great importance to the Sanitation Division have not been sanctioned. A Building Inspector is a necessity in a large town such as Dar-es-Salaam. It is useless for a Township Authority to insist on the production of complete plans before a building may be erected when there is no official available to see that the plans, when passed, are adhered to. The Public Works Department give what assistance they can to the Sanitation Division, but the extensive building programme now being carried out makes it impossible for the Director of Public Works to lend a Foreman of Works for this purpose. The difficulty will not be solved until a whole-time Inspector has been appointed. The Director of Public Works was asked to insert provision in his draft estimates for a Sanitary Engineer whose services could be put at the disposal of the Sanitation Division when required. There are numerous problems connected with drainage and water supplies of Townships in the Territory which can only be solved by a trained engineer with considerable sanitary experience. Each important Township in the Territory should be provided with a complete drainage plan which could be proceeded with from year to year as funds allow.

The appointment of a travelling Medical Officer of Health or Sanitary Superintendent who could visit the smaller towns and remain at each for a few weeks organising an efficient sanitary service would result in a considerable improvement in the condition of these Townships. As increased staff became available, this system could be extended to the larger villages.

The shortage of qualified investigators, who could be despatched immediately to determine the cause of any serious outbreak of infectious disease, gives rise to considerable difficulties. The two fatal epidemics referred to on p. 94 had both ceased before any Medical Officer could be sent to the infected area and, in consequence, no pathological material could be sent to the Laboratory for examination. The appointment of an Assistant Medical Officer of Health at Dar-es-Salaam and of an Assistant Bacteriologist would make it possible to despatch a trained observer to investigate an outbreak of dangerous infective disease.

A. H. OWEN,  
*Senior Sanitation Officer.*

#### IV. HOSPITALS AND DISPENSARIES.

Additions and alterations to the hospital accommodation in the Territory are detailed below (p. 103-105).

*Cases Treated.*

There came under treatment at the Government hospitals and dispensaries in 1923, 16,780 in-patients and 114,695 out-patients, the figures for 1922 being 13,650 and 103,409 respectively. Of the patients in 1923:—

528	In-patients	and	809	Out-Patients	were European Officials.
461	„	„	1,008	„	belonged to the General European Population.
6,997	„	„	34,423	„	were Asiatic and Native Officials, in which category are included the K.A.R., Police and Warders.
8,794	„	„	78,455	„	belonged to the General Asiatic and Native Population, in which Convicts are included.

Under the heading “ In-patients ” are included those patients treated at their homes who were incapacitated from following their usual avocations. Natives are very seldom treated at their homes: the additions to the number of in-patients concerns almost exclusively Europeans and Asiatics. Exact returns of the admissions to hospitals are shewn in the Annual Blue Book.

These figures are compiled from the returns of twenty-seven hospitals and dispensaries (*see* p. 106) and do not include several sub-stations at which Asiatic Compounders or Native Dressers are posted. The returns for Mahenge, Musoma, Mafia Island, Shinyanga and Mohoro are not included, either because they had not been received when this Report was compiled or on account of their inaccuracy. Mohoro was closed down as an administrative centre and the Compounder in charge withdrawn in April, 1923.

At the principal hospitals there has been a decided increase in the number of patients dealt with. The Medical Officer in charge (Dr. J. M. Semple) reports that the average number of patients in the Sewa Hadji Hospital, Dar-es-Salaam, during 1923, has been approximately 145, which, as he says, is “ better described as packing than as overcrowding.” At Arusha the number of admissions to hospital rose from 373 in 1921 to 544 in 1922 and to 599 in 1923. At most hospitals the numbers admitted are limited only by lack of further accommodation.

The number of surgical operations performed (*see* pp. 144-146) is almost exactly the same as in 1922 and, but for a shortage, in the early months of the year, of certain essentials, such as chloroform, would have been considerably greater. Many of the surgical cases reach hospital in a very septic condition and, in some instances, after long journeys, so that the mortality (4.12 per cent.) cannot be considered excessive. Native midwifery cases, in particular, come under treatment only when nature and native practitioners have been given every chance and are dealt with at great disadvantage. Amongst the more advanced tribes, the natives are showing less reluctance to submit to operative measures. The bulk of the surgical work has been done at six stations, viz.: the Sewa Hadji Hospital, Dar-es-Salaam, Tanga, Arusha, Tabora, Mwanza and Bukoba, by the Medical Officers in charge.

*Native Assistants.*

One of the chief difficulties encountered in the Territory, in connection with medical work, is the poor supply of educated and intelligent natives, suitable for training as hospital assistants or ward orderlies. Our most valuable native assistants come from adjoining Territories, particularly Nyasaland, where natives receive a very thorough training in medical work at certain of the Missions, notably the Church of Scotland Mission, Blantyre. To the authorities of that Mission the writer is much indebted for assistance in engaging trained assistants. The African native shows no mean aptitude for and interest in medical work, but is often deficient in sense of duty and resourcefulness. A great expansion in the activities of the Education Department of the Territory must be awaited before an adequate supply of Africans of approved reliability and sufficiently educated to profit by medical training, is available. Meanwhile, the Department recruits Sub-Assistant Surgeons and Compounders in India.

*Native Hospitals.*—Though, no doubt, good work is not infrequently accomplished at native hospitals constructed of rough timber, grass and reeds, such conditions impose a severe handicap on the staff, and it is gratifying to record that this type of accommodation is gradually being replaced by permanent and more suitable buildings at the principal centres. It does not seem unreasonable to demand that accommodation for the law-abiding sick shall be at least as good as that provided for the healthy criminal. The very heavy building programme with which the Public Works Department is confronted has made this process a slow one. In the districts, subsidiary to the hospital at the administrative headquarters, one would wish to see temporary hospitals at the principal native centres, under the immediate charge of trained African assistants: the enormous mass of disablement due to Yaws, Ankylostomiasis, Venereal Diseases, Tropical Ulcers, Filariasis, Schistosomiasis and Leprosy, cannot be seriously attacked until medical aid is brought near the homes of the people. Surgical cases would necessarily be transferred to the main hospital where better facilities existed. Supervision, by means of frequent visits from a European Medical Officer, would be essential and the possibility of this depends on increased European staff and improved communications. The best type of bedstead for native hospitals is a fruitful source of discussion. Most of our hospitals have wooden bedsteads of more or less primitive type. By no means available in out-stations can this type of bed be kept free of vermin. The problem is thought to have been solved by the construction to specification of a three-piece iron bedstead without crevices or holes in the frame and fitted with a canvas oblong, in place of a spring mattress, lashed to the tubular sides by stout cord. The canvas can be removed for boiling in a few seconds and replaced as speedily. Some of these bedsteads are in use at the Sewa Hadji Hospital and, thanks to a gift from the British Red Cross Society and Order of St. John, it will be possible to order nearly 400 more.

*X-ray Apparatus.*—The X-ray apparatus at the European Hospital, Dar-es-Salaam—the only set in the Territory—has been out of action for some ten months of the year owing to the “burning-out” of the coil. A new coil has been ordered. It may be mentioned that the staff of the Electric Light Department has rendered great assistance, otherwise unobtainable, in putting this apparatus into working order, and it is much to be regretted that the coil became useless soon after this had been accomplished. The expense incurred in purchasing a new coil and other renovations has prevented the acquirement of a dental X-ray set. For reasons mentioned in the report of the Government Dentist, p. 149, it is considered that this apparatus would be of great value.

#### NEW BUILDINGS ERECTED AND IMPROVEMENTS AND REPAIRS TO EXISTING MEDICAL BUILDINGS EFFECTED DURING 1923.

##### ARUSHA.

The kitchen and new latrine for the European Hospital were completed by the Public Works Department and numerous minor repairs to the hospital buildings effected.

Work was commenced on a new house for the Compounder; his old quarters, composed of native materials, having fallen into serious disrepair.

##### BUKOKA.

The new native hospital, constructed largely out of material obtained by the demolition of the old Infectious Diseases Hospital, was ready for occupation in the middle of July. The operation room, in the Administrative block, has proved a great boon and 97 of the 850 surgical operations tabulated at pp. 144-146 were performed at Bukoba. Accommodation for 42 in-patients is provided, but the Medical Official reports that structural defects in the buildings have revealed themselves and extensive repairs are likely to be required in the near future.

##### DAR-ES-SALAAM.

*Sewa Hadji Hospital.*—An old store and X-ray room were renovated and converted into a three-bedded ward: the dark room, attached to the X-ray room, was arranged as a lavage room.

With a view to diminishing thefts—which had been of frequent occurrence—the hospital buildings have been fenced in.

The accommodation at the hospital has been continuously taxed to its utmost limits.

The site of the hospital, on the harbour in proximity to the Customs Offices, is likely to become very valuable when increased facilities for shipping are provided, and it is considered that it should be relinquished and a new and larger hospital erected at a more convenient place. With the exception of the Administrative block, the buildings are of poor construction and small value.

*European Hospital.*—The Senior Medical Officer vacated the ground floor of the annexe in March and, after various improvements, including a new staircase connecting the two floors, had been effected by the Public Works Department, the whole annexe was assigned to the Nursing Sisters, who now enjoy excellent and commodious quarters. The Senior Medical Officer was, temporarily, allotted one of the new two storied houses in Main Avenue: a new bungalow, on the plot adjoining that on which the Principal Medical Officer's house stands, was nearing completion at the end of the year and will be occupied by the Senior Medical Officer early in 1924.

*Health Offices.*—New offices in Acacia Street, affording better accommodation, were occupied by the Medical Officer of Health in November, 1922. They are leased from the owners at a rental of Shs. 600/- p. m.

The new Market was opened by His Excellency the Governor on 1st August, 1923. It is a most excellent building for the purpose and is provided with efficient flushing arrangements, good drainage and screened meat safes. It has proved a very great improvement to the town.

The rebuilding of the sewer outlets in the harbour and on the sea front has been taken in hand and great improvements effected.

#### DODOMA.

Plans for a new Native and Indian hospital, for which £2,000 appears in the 1923/24 Estimates, have been drawn up and the site selected: work has not yet commenced. It is intended to convert the administrative block of the old hospital into a residence, for which purpose it is, both in construction and site, well adapted.

#### KIGOMA.

One block of the new native hospital was completed during the year.

#### LINDI.

The new house for the Medical Officer was nearing completion at the end of the year. Repairs and improvements to the hospital buildings have been effected.

#### MIKINDANI (LINDI DISTRICT).

The new quarters for the Sub-Assistant Surgeon were completed. One of the go-downs, adjoining the Usugara building, where the dispensary is located, was converted into a hospital ward for natives.

#### MOROGORO.

Various minor repairs have been carried out by the Public Works Department at the hospital.

*Central Lunatic Asylum.*—It was originally intended to build the new asylum at Dar-es-Salaam. The difficulty of obtaining a suitable site and high value of land in the capital led to a decision to build the asylum at Morogoro, where an excellent site of 40 acres has been obtained. Plans, based on information and drawings kindly supplied by Major W. S. J. Shaw, M.D., I.M.S., Superintendent Central Asylum, Yeravda, have been drawn up. £7,000 has been voted for the buildings, upon which work has not yet been commenced.

## MOSHI.

The new native hospital, mentioned in last year's report, was completed and occupied in March: it is a temporary structure, composed of native materials. A sum of £2,000 appears in the 1923/24 Estimates to provide a new permanent Native and Indian Hospital at Moshi: work on these buildings had not been commenced at the end of the year.

## NAMANYERE (UFIPA DISTRICT).

The Dispensary, constructed of native materials, was completed in May.

## TABORA.

*European Hospital.*—The verandah to the west wing was completed, but further work on the new bathrooms and w.c.'s has been delayed.

*Native Hospital.*—The present native hospital is a strange collection of buildings, but poorly adapted for hospital purposes. A vote of £6,000 for a new Native and Indian hospital appears in the 1923-24 Estimates. Plans have been drawn up and the site selected, but work has not yet been commenced.

## SHINYANGA (SUB-DISTRICT OF TABORA).

The Administrative Officer in charge (Mr. McMahon) has erected a small hospital of three wards, with dispensary, kitchen and latrines, with the aid of a small vote from the Public Works Department. These buildings are constructed of local materials and replace the three very dilapidated grass huts which have served as a hospital hitherto. They were nearing completion at the end of the year. At Negeze, in Shinyanga, Sultan Makawaia has erected a hospital and dispensary of local materials at his own expense, the Government providing doors and windows. These buildings were completed at the end of the year and a native dispenser was despatched to take over charge.

## TANGA.

The Medical Officer of Health removed to new offices in March, the building previously used as Health Offices being required by the Public Works Department.

At the hospital, a mortuary and post-mortem room were erected, additions to the bathroom and latrine accommodation for native patients constructed and a block of the native hospital renovated for the reception of Goan and higher class Asiatic patients: separate latrine and store accommodation was provided for this block which now affords very satisfactory accommodation.

The old medical store was converted into quarters for the Nursing Staff who previously occupied rooms on the ground floor of the hospital. From the accommodation thus set free in the hospital, a drug store and a room for microscopical examinations have been provided.

The floors of the Senior Medical Officer's quarters have been cemented.

Some work has been done on the water supply to the European hospital, but it is still far from satisfactory: new pumps are required.

## TUKUYU.

Alterations and additions to the hospital were completed.

## IGALI

Is a sub-station of Tukuyu. Here a small new native hospital and dispensary have been erected. The medical work is in charge of a native hospital attendant.

### *Shinyanga Hospital.*

Photographs by Mr. McMahon, A.O., Shinyanga (not reproduced).

TABLE X.

SUMMARY OF CASES, IN AND OUT-PATIENTS, TREATED AT TWENTY-SEVEN GOVERNMENT  
HOSPITALS AND DISPENSARIES IN 1923, SHOWING DENOMINATIONS OF PATIENTS.

STATIONS.	IN-PATIENTS.				Deaths.	OUT-PATIENTS.				Total.
	E.O.	E.G.P.	N.O.	N.G.P.		E.O.	E.G.P.	N.O.	N.G.P.	
Arusha .. .. .	8	38	316	302	24	34	112	860	4,929	6,599
Bagamoyo .. .. .	1	—	85	143	4	6	2	577	4,007	4,821
Bukoba .. .. .	7	—	49	662	22	5	26	739	6,465	7,953
Dar-es-Salaam .. .. .	274	117	190	62	6	274	278	159	92	1,446
" .. .. .	—	—	2,391	997	60	—	—	9,903	5,387	18,678
Dodoma .. .. .	30	2	163	406	19	56	23	888	3,685	5,253
Iringa .. .. .	1	1	175	203	9	24	2	1,836	5,000	7,242
Kahama .. .. .	—	—	63	174	3	—	2	303	437	979
Kigoma .. .. .	18	19	188	274	18	5	3	620	418	1,545
Kilossa .. .. .	2	2	37	178	9	22	20	410	2,247	2,918
Kilwa .. .. .	4	1	48	101	8	3	—	306	2,105	2,568
Kondoa-Irangi .. .. .	1	25	10	43	2	1	6	69	950	1,105
Lindi .. .. .	10	3	122	181	6	18	9	772	1,805	2,920
Lushoto .. .. .	3	1	14	51	2	13	7	322	1,389	1,800
Mikindani .. .. .	1	—	56	64	8	—	1	249	1,208	1,579
Morogoro .. .. .	18	6	294	376	47	15	10	1,235	1,289	3,243
Moshi .. .. .	8	117	74	331	32	31	154	1,233	7,539	9,487
Mwanza .. .. .	21	51	232	610	28	22	24	1,227	2,696	4,883
Namanyere .. .. .	10	3	10	277	8	12	5	589	3,544	4,450
Pangani .. .. .	2	4	28	260	12	—	6	26	1,745	2,071
Singidda .. .. .	1	3	21	277	9	2	3	190	760	1,257
Songea .. .. .	3	—	218	174	13	28	5	2,805	2,968	6,201
Tabora .. .. .	48	21	1,776	869	59	142	139	5,302	1,075	9,372
Tanga .. .. .	44	38	229	936	103	65	155	2,130	7,449	11,046
Tunduru .. .. .	—	—	4	148	1	—	—	264	4,104	4,520
Tukuyu .. .. .	9	4	100	584	29	10	10	614	4,304	5,635
Utete .. .. .	4	5	104	111	4	21	6	795	858	1,904
Totals .. .. .	528	461	6,997	8,794	545	809	1,008	34,423	78,455	131,475

E.O.=European Officials. E.G.P.=European General Population. N.O.=Asiatic and Native Officials.

N.G.P.=General Asiatic and Native Population.

RETURN OF DISEASES (IN AND OUT-PATIENTS) FOR THE YEAR 1923, BY STATIONS.

Disease.	Arusha.	Bagamoyo.	Bukoba.	European Hospital, Dar-es-Salaam.	Sewa Hadji Hospital, Dar-es-Salaam.	Dodoma.	Iringa.	Kahama.	Kigoma.	Kilossa.	Kilwa.	Kondoa-Irangi.	Lindi.	Lushoto.
(a) <i>Infective disease—</i>														
Beri Beri..	1	—	—	—	1	2	2	—	2	—	—	—	—	—
Cerebro-spinal Fever	17	1	4	—	4	29	7	—	14	—	—	6	2	—
Chicken Pox ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cholera ..	—	—	—	9	—	—	—	—	—	—	—	—	—	—
Dengue ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Diphtheria ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dysentery—														
(a) Amoebic ..	37	5	—	10	12	2	14	—	8	2	—	—	—	3
(b) Bacillary ..	—	2	—	2	5	13	1	—	—	1	2	—	—	—
(c) Unclassified ..	1	2	2	1	—	11	1	—	—	1	—	5	2	—
Endocarditis-infective ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Enteric Fever ..	1	—	—	9	3	—	—	—	—	—	—	1	—	—
Paratyphoid Fever ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Erysipelas ..	1	—	—	—	—	9	—	—	—	—	—	—	3	—
Gangrene ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Gangosa ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Gonorrhoea ..	94	38	561	2	185	45	6	19	49	40	28	34	21	15
Influenza ..	72	—	—	27	230	—	11	—	8	—	—	—	3	—
Kala Azar ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Leprosy—														
(a) Nodular ..	2	—	14	—	—	—	—	—	7	—	2	—	—	1
(b) Anaesthetic ..	—	—	—	—	—	—	—	1	—	—	—	2	—	—
(c) Unclassified ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Malaria—														
(a) Tertian ..	28	561	1,259	9	—	852	646	125	9	—	104	203	—	140
(b) Quartan ..	—	—	—	—	—	—	—	—	—	—	2	—	—	—
(c) Aestivo-autumnal ..	26	—	—	199	4,387	—	—	—	7	477	1	—	—	—
(d) Chronic Malaria ..	6	7	16	—	10	2	2	—	—	—	—	10	2	2
Carried forward ..	286	616	1,856	268	4,837	963	689	145	104	521	139	261	33	161

RETURN OF DISEASES (IN AND OUT-PATIENTS) FOR THE YEAR 1923, BY STATIONS—continued.

Disease.	Mikindani.	Morogoro.	Moshi.	Mwanza.	Namanyere.	Pangani.	Songea.	Singida.	Tabora.	Tanga.	Tunduru.	Tukuyu.	Utete.	Total.
(a) Infective disease—														
Beri Beri..	..	..	..	..	1	..	..	..	..	..	..	..	..	2
Cerebro-spinal Fever	..	..	..	..	2	..	..	..	..	..	..	..	..	9
Chicken Pox	..	17	..	54	..	..	5	..	45	37	..	..	..	244
Cholera ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dengue ..	..	..	..	..	..	..	..	..	..	..	..	..	..	9
Diphtheria	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dysentery—														..
(a) Amoebic ..	8	32	22	7	12	2	7	2	19	9	..	8	..	191
(b) Bacillary ..	..	7	..	2	..	2	..	2	..	13	..	6	12	78
(c) Unclassified	..	..	..	..	..	..	..	..	..	..	..	..	..	49
Endocarditis-infective	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Enteric Fever ..	..	1	..	2	..	..	..	1	2	..	..	..	..	20
Paratyphoid Fever	..	..	..	..	..	..	..	..	1	..	..	..	..	1
Erysipelas	..	..	3	..	..	..	..	..	..	..	..	..	..	16
Gangrene	..	..	..	..	1	..	..	..	..	..	..	..	..	1
Gangosa ..	..	..	10	1	..	..	..	..	..	..	..	..	..	11
Gonorrhœa	14	39	26	111	32	16	63	14	129	116	55	16	19	1,787
Influenza	..	..	374	3	89	..	281	1	463	59	929	620	2	3,172
Kala Azar	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Leprosy—														..
(a) Nodular ..	..	1	..	2	..	..	..	..	..	..	..	6	..	35
(b) Anaesthetic	..	..	1	..	..	13	..	..	..	..	..	3	..	19
(c) Unclassified	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Malaria—														..
(a) Tertian ..	..	477	..	688	508	140	68	101	..	208	101	349	290	6,866
(b) Quartan ..	..	6	..	..	..	2	13	..	..	..	..	..	1	24
(c) Aestivo-autumnal	..	..	5	4	32	..	..	..	1,137	992	..	74	..	7,341
(d) Chronic Malaria ..	..	5	..	1	..	21	1	1	3	5	..	..	18	112
Carried forward	22	585	441	879	677	198	438	122	1,799	1,439	1,085	1,082	342	19,988

RETURN OF DISEASES (IN AND OUT-PATIENTS) FOR THE YEAR 1923, BY STATIONS—continued.

Disease.	Arusha.	Bagamoyo.	Bukoba.	European Hospital, Dar-es-Salaam.	Sewa Hadji Hospital, Dar-es-Salaam.	Dodoma.	Iringa.	Kahama.	Kigoma.	Kilossa.	Kilwa.	Kondoa-Irangi.	Lindi.	Lushoto.
Brought forward ..	286	616	1,856	268	4,837	963	689	145	104	521	139	261	33	161
(a) <i>Infective disease</i> —continued.														
Malaria—														
(e) Blackwater ..	—	2	1	8	4	—	—	—	2	2	1	—	1	—
(f) Cerebral ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(g) Unclassified ..	244	—	—	—	—	—	—	—	212	—	—	—	306	—
Measles ..	—	—	14	2	1	—	—	—	—	—	27	—	—	—
Mumps ..	—	—	8	—	2	5	12	1	—	—	—	—	—	2
Mycetoma ..	—	—	—	—	1	—	—	—	—	—	—	—	—	—
Malta Fever ..	1	—	—	—	—	—	—	—	—	—	—	—	—	—
Pellagra ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Plague ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Pneumonia, acute lobar ..	7	8	7	4	105	4	3	7	5	6	1	11	2	2
Pyogenic Infection—														
(a) Abscess ..	—	—	—	—	—	—	—	—	2	—	—	—	—	—
(b) Osteomyelitis ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(c) Pyoemia ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Rabies ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Relapsing (Tick) Fever ..	5	—	—	7	30	2	44	1	6	2	—	—	—	1
Rheumatic Fever ..	—	—	—	—	—	—	21	4	1	—	3	—	—	—
Rubella ..	1	—	—	—	—	—	—	—	—	—	—	—	—	—
Sand-fly Fever ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Septicæmia ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Seven Days' Fever ..	—	—	—	7	—	—	—	—	—	—	—	1	—	—
Trypanosomiasis (S. Sick) ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Small Pox ..	2	1	—	—	—	—	—	2	—	—	—	3	1	3
Syphilis—														
(a) Primary ..	1	6	14	1	110	83	36	20	13	18	3	5	8	5
(b) Secondary ..	28	8	625	2	98	23	21	7	56	59	5	101	16	1
(c) Inherited ..	1	2	12	1	124	1	—	—	1	—	—	—	—	1
(d) Tertiary ..	7	—	—	—	—	—	—	—	—	—	—	—	—	—
Carried forward ..	583	643	2,537	300	5,312	1,081	826	187	402	608	179	382	367	176

Some cases of Blackwater Fever were transferred from one station to another and thus appear under two stations: the total number of cases is 35, as stated.

RETURN OF DISEASES (IN AND OUT-PATIENTS) FOR THE YEAR 1923, BY STATIONS—continued.

Disease.	Mikindani.	Morogoro.	Moshi.	Mwanza.	Namanyere.	Pangani.	Songea.	Singida.	Tabora.	Tanga.	Tunduru.	Tukuyu.	Utete.	Total.
Brought forward ..	22	585	441	879	677	198	438	122	1,799	1,439	1,085	1,082	342	19,988
(a) Infective disease—continued.														
Malaria—														
(e) Blackwater ..	—	2	2	3	—	3	—	—	7	1	—	1	—	35
(f) Cerebral ..	1	1	—	—	—	—	—	—	—	—	—	—	—	2
(g) Unclassified ..	56	—	3,033	6	2	—	706	—	—	1	—	—	—	4,584
Measles ..	—	—	—	—	8	—	—	—	7	—	—	9	—	26
Mumps ..	35	—	3	—	—	5	—	—	—	—	—	—	—	92
Mycetoma ..	—	—	—	—	—	—	—	—	—	—	—	—	—	6
Malta Fever ..	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Pellagra ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Plague ..	—	—	—	—	—	—	—	1	—	—	—	—	—	1
Pneumonia, acute lobar ..	2	21	7	3	35	3	9	7	19	54	—	13	23	368
Pyogenic Infection—														
(a) Abscess ..	—	1	1	—	—	—	1	2	—	—	—	—	—	7
(b) Osteomyelitis ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(c) Pyoemia ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Rabies ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Relapsing (Tick) Fever ..	—	4	—	4	—	—	—	—	3	5	—	3	2	119
Rheumatic Fever ..	—	1	1	20	4	—	—	—	7	—	1	—	7	70
Rubella ..	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Sand-fly Fever ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Septicæmia ..	—	1	—	—	—	—	—	1	—	3	—	—	—	6
Seven Days' Fever ..	—	—	—	—	—	—	—	—	—	—	—	—	—	7
Trypanosomiasis (S. Sick) ..	—	—	—	3	—	—	—	—	—	—	—	—	—	3
Small Pox ..	—	—	—	—	—	—	—	1	—	12	—	—	—	25
Syphilis—														
(a) Primary ..	1	13	—	177	1	3	15	32	37	46	38	21	9	716
(b) Secondary ..	6	95	92	108	73	17	1	31	55	82	36	42	—	1,688
(c) Inherited ..	—	—	—	—	2	—	1	—	83	10	—	14	—	253
(d) Tertiary ..	—	2	—	—	1	—	—	—	—	—	—	—	—	10
Carried forward ..	123	726	3,580	1,203	803	229	1,171	197	2,017	1,653	1,160	1,185	383	28,008

RETURN OF DISEASES (IN AND OUT-PATIENTS) FOR THE YEAR 1923, BY STATIONS—continued.

Disease.	Arusha.	Bagamoyo.	Bukoba.	European Hospital, Dar-es-Salaam.	Sewa Hadji Hospital, Dar-es-Salaam.	Dodoma.	Iringa.	Kahama.	Kigoma.	Kilossa.	Kilwa.	Kondoa-Irangi.	Lindi.	Lushoto.
Brought forward ..	583	643	2,537	300	5,312	1,081	826	187	402	608	179	382	367	176
(a) <i>Infective disease</i> —continued														
Tetanus ..	—	—	—	—	2	8	—	—	—	—	—	—	—	—
Tuberculosis ..	5	5	5	1	29	—	2	—	7	—	3	3	5	3
Vaccinia ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Whooping Cough ..	—	16	5	2	2	—	—	—	—	—	—	—	—	—
Yaws ..	202	72	10	—	413	54	13	28	163	18	143	407	91	30
P.U.O. ..	166	—	—	95	89	—	2	—	2	—	—	1	—	—
Others ..	—	—	—	—	—	—	—	—	1	—	—	—	—	—
(b) <i>Intoxications</i> —														
Alcoholism ..	1	—	—	—	—	—	—	—	—	—	—	—	—	—
Morphinism ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Others ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(c) <i>General diseases</i> —														
Anæmia ..	13	183	3	7	62	23	1	—	2	14	26	1	19	3
Anæmia-Pernicious ..	—	—	—	—	6	—	—	—	—	—	—	—	—	—
Diabetes ..	—	—	—	—	2	—	—	—	—	—	—	—	—	—
Exophthalmic Goitre ..	—	—	—	1	—	—	—	—	—	—	—	—	1	1
Gout ..	—	—	1	—	4	1	1	—	—	—	—	—	1	2
Leucocythæmia ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hodgkin's disease ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
-Myxœdema ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Purpura ..	—	—	2	—	—	—	—	—	—	—	—	—	—	—
Rickets ..	—	—	—	—	2	—	—	—	—	—	—	—	—	—
Scurvy ..	—	—	—	—	4	—	—	—	—	—	—	—	—	—
Goitre, parenchymatous ..	2	—	—	—	—	—	—	—	—	—	—	—	—	—
Starvation ..	1	—	—	—	—	—	—	—	—	—	—	—	3	—
Debility ..	—	—	1	76	—	—	—	—	—	—	—	—	—	—
Hæmophilia ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other General diseases ..	19	14	—	34	10	32	—	—	—	—	—	—	—	3
Carried forward ..	992	933	2,564	516	5,937	1,199	845	215	577	640	351	794	487	218

RETURN OF DISEASES (IN AND OUT-PATIENTS) FOR THE YEAR 1923, BY STATIONS—continued.

Disease.	Mikindani.	Morogoro.	Moshi.	Mwanza.	Namanyere.	Pangani.	Songea.	Singida.	Tabora.	Tanga.	Tunduru.	Tukuyu.	Utete.	Total.
Brought forward ..	123	726	3,580	1,203	803	229	1,171	197	2,017	1,653	1,160	1,185	383	28,008
(a) <i>Infective disease</i> —continued														
Tetanus ..	—	—	—	—	—	—	—	—	—	3	—	—	—	5
Tuberculosis ..	3	—	32	5	—	12	8	—	6	9	—	9	2	162
Vaccinia ..	—	—	5	—	—	—	1	—	—	8	1	—	—	5
Whooping Cough ..	—	—	4	—	—	—	—	2	—	—	—	—	—	41
Yaws ..	29	187	196	33	76	119	133	19	97	302	308	422	51	3,616
P.U.O. ..	—	—	5	—	—	—	—	—	—	—	76	—	—	436
Others ..	—	2	—	—	—	—	—	—	—	—	—	—	—	3
(b) <i>Intoxications</i> —														
Alcoholism ..	—	—	1	—	—	—	—	—	—	—	—	—	—	2
Morphinism ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Others ..	—	—	—	—	—	—	—	—	—	—	—	—	1	1
(c) <i>General diseases</i> —														
Anæmia ..	—	2	37	35	6	25	7	13	32	57	19	8	—	598
Anæmia-Pernicious ..	—	—	—	1	—	1	1	—	1	2	—	—	—	8
Diabetes ..	—	—	—	—	—	—	—	—	—	—	—	—	—	7
Exophthalmic Goitre ..	—	—	—	—	1	—	—	—	—	—	14	—	—	3
Gout ..	—	—	—	—	—	—	—	—	—	—	—	—	—	24
Leucocythæmia ..	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Hodgkin's disease ..	—	—	1	—	—	—	—	—	—	—	—	—	—	—
Myxœdema ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Purpura ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Rickets ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Scurvy ..	—	5	—	—	—	—	1	—	5	3	2	—	—	2
Goitre, parenchymatous ..	—	—	—	—	—	—	—	—	—	—	—	—	—	5
Starvation ..	—	—	1	—	—	—	—	—	—	—	—	3	—	17
Debility ..	—	31	—	1	—	—	1	1	2	5	—	—	25	8
Hæmophilia ..	—	—	1	—	—	—	—	—	—	—	—	—	—	2
Other General diseases ..	—	—	—	114	—	18	—	—	—	22	—	—	5	143
Carried forward ..	155	953	3,863	1,392	886	404	1,323	232	2,160	2,064	1,580	1,627	467	33,369

RETURN OF DISEASES (IN AND OUT-PATIENTS) FOR THE YEAR 1923, BY STATIONS—continued.

Disease.	Arusha.	Bagamoyo.	Bukoba.	European Hospital, Dar-es-Salaam.	Sewa Hadji Hospital, Dar-es-Salaam.	Dodoma.	Iringa.	Kahama.	Kigoma.	Kilossa.	Kilwa.	Kondea-Irangi.	Lindi.	Lushoto.
Brought forward ..	992	933	2,564	516	5,937	1,199	845	215	577	640	351	794	487	218
d) Local diseases—														
(1) Nervous System—														
Neuritis ..	2	27	3	4	101	2	1	—	4	—	1	—	—	—
Meningitis ..	—	—	—	—	1	—	—	—	—	—	—	—	—	—
Myelitis ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hydrocephalus ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Encephalitis ..	—	—	—	—	1	—	—	—	—	—	—	—	—	—
Abscess of Brain ..	—	—	—	—	—	—	—	—	—	4	—	—	—	—
Congestion of Brain ..	1	—	—	—	—	—	—	—	—	—	—	1	—	—
Tubercular Meningitis ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Locomotor Ataxia ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cerebral Thrombosis ..	—	—	—	2	14	—	—	—	—	—	1	—	1	—
Other diseases ..	2	—	1	1	1	—	—	—	2	—	—	—	—	—
Apoplexy ..	2	14	9	—	8	1	—	—	—	—	—	1	—	—
Paralysis ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Chorea ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Epilepsy ..	1	5	15	—	10	6	—	1	1	1	—	4	—	6
Neuralgia ..	40	198	—	35	309	54	9	40	1	68	43	12	41	3
Hysteria ..	—	—	—	—	2	—	115	—	—	—	2	—	4	10
Headache ..	—	—	—	—	1	—	—	—	—	—	—	—	1	—
Neurasthenia ..	—	—	—	17	—	—	—	—	—	—	—	—	—	—
Migraine ..	—	—	8	—	—	—	—	—	—	—	—	—	—	—
Aphasia ..	—	—	2	—	—	—	1	—	1	—	—	—	—	—
Insomnia ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Infantile Paralysis ..	—	—	—	—	—	—	—	—	—	—	—	1	—	—
Torticollis ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Aural Vertigo ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Vertigo ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other diseases ..	59	1	—	2	4	—	—	—	1	—	26	—	—	2
Mental diseases ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Carried forward ..	1,099	1,178	2,602	577	6,389	1,262	971	256	586	713	424	814	534	242

RETURN OF DISEASES (IN AND OUT-PATIENTS) FOR THE YEAR 1923, BY STATIONS—continued.

Disease.	Mikindani.	Morogoro.	Moshi.	Mwanza.	Namanyere.	Pangani.	Songea.	Singidda.	Tabora.	Tanga.	Tunduru.	Tukuyu.	Utete.	Total.
Brought forward ..	155	953	3,863	1,392	886	404	1,323	232	2,160	2,064	1,580	1,627	467	33,369
(d) Local diseases—														
(1) Nervous System—														
Neuritis ..	1	15	—	—	131	1	—	3	14	19	43	4	9	383
Meningitis ..	—	—	4	—	—	—	—	—	—	1	—	—	—	8
Myelitis ..	—	—	—	1	—	—	—	—	—	—	—	—	—	1
Hydrocephalus ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Encephalitis ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Abscess of Brain ..	—	—	—	—	—	—	—	—	—	1	—	—	—	1
Congestion of Brain ..	—	—	—	—	—	—	—	—	—	—	—	—	—	5
Tubercular Meningitis ..	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Locomotor Ataxia ..	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Cerebral Thrombosis..	—	—	—	—	—	14	—	—	—	5	—	—	—	47
Other diseases ..	—	8	—	—	—	—	—	—	2	—	—	—	—	5
Apoplexy ..	—	—	—	—	—	—	—	—	6	—	—	1	1	49
Paralysis ..	—	—	—	—	—	2	—	—	—	—	—	—	—	—
Chorea..	—	—	2	—	—	—	1	—	—	—	—	—	—	—
Epilepsy ..	—	—	4	1	6	2	3	3	6	—	—	12	2	84
Neuralgia ..	59	69	—	138	52	—	—	29	143	71	9	—	103	1,528
Hysteria ..	—	—	2	—	—	—	—	—	—	—	—	—	—	7
Headache ..	—	23	1	—	5	—	—	—	—	4	33	—	—	194
Neurasthenia ..	—	—	8	—	—	—	—	—	3	—	8	—	—	41
Migraine ..	—	—	—	—	—	—	—	—	—	—	—	—	—	8
Aphasia ..	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Insomnia ..	—	—	—	—	—	—	—	—	3	1	—	—	—	6
Infantile Paralysis ..	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Torticollis ..	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Aural Vertigo..	—	—	1	—	—	—	—	—	—	—	—	—	—	2
Vertigo ..	—	—	—	—	—	—	—	—	—	1	—	—	—	1
Other diseases ..	—	—	—	1	—	—	—	—	—	14	—	—	15	125
Mental diseases ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Carried forward ..	215	1,068	3,885	1,533	1,080	423	1,327	267	2,338	2,182	1,675	1,644	597	35,875

RETURN OF DISEASES (IN AND OUT-PATIENTS) FOR THE YEAR 1923, BY STATIONS—continued.

Disease.	Arusha.	Bagamoyo.	Bukoba.	European Hospital, Dar-es-Salaam.	Sewa Hedji Hospital, Dar-es-Salaam.	Dodoma.	Iringa.	Kahama.	Kigoma.	Kilosa.	Kilwa.	Kondoa-Irangi.	Lindi.	Lushoto.
Brought forward ..	1,099	1,178	2,602	577	6,389	1,262	971	256	586	713	424	814	534	242
(d) Local diseases—continued														
Idiocy ..	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Mania ..	—	4	3	—	—	—	—	—	1	—	—	4	1	—
Melancholia ..	—	—	—	—	—	—	1	—	—	—	—	—	—	—
Dementia ..	—	—	—	—	—	—	—	—	—	—	—	2	—	—
Delusional Insanity ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
G.P.I. ..	—	—	1	—	—	—	—	2	—	—	—	—	—	—
Other Mental diseases ..	—	—	—	—	3	1	—	—	1	—	4	—	—	—
(2) Diseases of the Eye—														
Conjunctivitis ..	405	204	329	16	751	390	328	16	34	83	64	111	77	16
Keratitis ..	—	10	2	—	4	—	—	—	—	—	—	—	—	—
Ulceration of Cornea ..	3	6	1	—	9	8	—	—	—	—	—	2	—	—
Iritis ..	1	6	—	3	3	1	—	—	—	—	—	—	—	—
Optic Neuritis ..	—	—	—	—	—	—	—	—	—	—	—	—	—	6
Cataract ..	—	7	—	1	10	7	—	—	—	1	2	—	—	—
Pterygium ..	2	—	—	—	—	—	—	—	—	—	—	—	—	—
Entropion ..	—	—	2	—	—	—	—	—	—	—	—	—	—	—
Glaucoma ..	—	—	2	—	—	—	—	—	—	—	—	—	—	—
Hordeolum ..	—	—	—	5	—	—	—	—	—	—	—	—	—	—
Blepharitis ..	—	—	—	1	—	—	—	—	—	—	—	—	—	—
Intra-ocular Hæmorrhage ..	—	—	—	1	—	—	—	—	—	—	—	—	—	—
Ophthalmia Neonatorum ..	—	—	—	—	1	—	—	—	—	—	—	—	—	—
Trachoma ..	—	—	—	—	—	36	—	—	—	—	—	—	—	—
Panophthalmitis ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Eye diseases ..	16	12	32	6	150	21	74	—	1	7	1	3	—	4
(3) Diseases of the Ear—														
Inflammation of Ext. Ear ..	—	51	—	—	210	102	89	—	19	5	25	—	18	39
" " Middle Ear ..	52	—	90	5	104	2	—	—	—	—	—	7	—	—
" " Mastoid ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Furunculosis ..	—	—	—	7	—	—	—	—	—	—	—	—	—	—
Carried forward ..	1,578	1,478	3,064	623	7,634	1,830	1,463	274	642	809	521	1,943	630	308

RETURN OF DISEASES (IN AND OUT-PATIENTS) FOR THE YEAR 1923, BY STATIONS—continued.

Disease.	Mikindani.	Morogoro.	Moshi.	Mwanza.	Namanyere.	Pangani.	Songea.	Singida.	Tabora.	Tanga.	Tunduru.	Tukuyu.	Utete.	Total
Brought forward ..	215	1,068	3,885	1,533	1,080	423	1,327	267	2,338	2,182	1,675	1,644	597	35,875
(a) Local diseases—continued														
Idiocy ..	—	—	—	—	—	—	—	—	—	—	1	—	—	2
Mania ..	—	—	—	—	—	—	1	—	1	2	—	—	1	16
Melancholia ..	—	—	—	—	—	—	—	—	2	—	—	—	—	4
Dementia ..	—	—	—	—	2	—	—	—	—	1	—	—	—	2
Delusional Insanity ..	—	1	—	—	—	—	—	—	—	—	—	—	—	7
G.P.I. ..	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Other Mental diseases ..	—	—	—	—	—	—	—	—	1	1	—	—	—	13
(2) Diseases of the Eye—														
Conjunctivitis ..	37	68	109	165	192	47	228	55	253	214	53	297	39	4,581
Keratitis ..	1	2	4	5	5	—	1	—	5	15	—	—	5	53
Ulceration of Cornea ..	—	2	3	5	—	—	1	—	1	27	1	7	—	75
Iritis ..	—	—	1	—	—	—	1	—	—	6	23	3	—	55
Optic Neuritis ..	—	1	—	—	—	—	—	—	—	—	—	—	—	1
Cataract ..	—	—	1	1	2	—	—	1	1	10	—	1	1	46
Pterygium ..	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Entropion ..	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Glaucoma ..	—	1	—	—	—	—	—	—	—	—	—	—	—	3
Hordeolum ..	—	—	—	—	—	—	—	—	—	—	—	—	—	5
Blepharitis ..	—	—	1	—	—	—	—	—	—	—	—	—	—	2
Intra-ocular Hæmorrhage ..	—	—	—	—	—	—	—	—	1	—	—	—	—	2
Ophthalmia Neonatorum ..	—	—	—	—	—	—	—	—	—	1	—	—	—	2
Trachoma ..	—	—	—	—	—	1	13	—	—	—	—	—	—	50
Panophthalmitis ..	—	—	—	—	—	—	1	—	—	2	—	—	—	3
Other Eye diseases ..	—	2	4	24	1	8	1	1	11	40	27	5	15	470
(3) Diseases of the Ear—	4													
Inflammation of Ext. Ear ..	—	18	81	78	—	—	117	—	3	82	7	103	—	1,047
" Middle Ear ..	11	11	—	—	59	20	35	11	77	—	43	—	—	527
" Mastoid ..	—	—	—	—	—	—	—	—	—	1	—	—	—	1
Furunculosis ..	—	—	—	—	—	—	—	—	—	—	—	—	—	7
Carried forward ..	268	1,174	4,089	1,806	1,341	499	1,725	335	2,694	2,584	1,829	2,060	658	42,854

N.B.—Total Intra-ocular Hæmorrhage 1. The case of Intra-ocular Hæmorrhage was in hospital both at Tabora and Dar-es-Salaam.

RETURN OF DISEASES (IN AND OUT-PATIENTS) FOR THE YEAR 1923, BY STATIONS—continued.

Disease.	Arusha.	Bagamoyo.	Bukoba.	European Hospital, Dar-es-Salaam.	Sewa Hedji Hospital, Dar-es-Salaam.	Dodoma.	Iringa.	Kahama.	Kigoma.	Kilossa.	Kilwa.	Kondea-Irangi.	Lindi.	Lushoto.
Brought forward ..	1,578	1,478	3,064	623	7,634	1,830	1,463	274	642	809	521	943	630	308
(d) Local diseases—continued														
Other Ear diseases ..	27	55	5	33	101	1	65	8	2	59	13	68	2	13
(4) Diseases of the Nose—														
Rhinitis, Catarrhal ..	—	—	—	17	—	—	10	—	1	2	1	—	4	—
" Suppurative	—	—	—	1	—	—	—	—	—	—	—	—	—	—
N. Polypus ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Foreign Body, Nose ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other Diseases of Nose	3	16	2	—	23	1	—	—	—	1	—	—	—	1
(5) Circulatory System—														
Pericarditis, Serofibrinous	—	—	—	—	—	—	—	—	—	—	—	1	—	—
" Suppurative	1	—	—	—	—	—	—	—	—	—	—	—	—	—
Endocarditis ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Valvular, Mitral ..	1	—	2	—	3	—	1	—	—	6	2	—	—	1
" Aortic	—	—	—	—	—	1	—	—	—	—	—	—	—	—
" Tricuspid ..	—	—	1	—	—	—	—	—	—	—	—	—	—	—
Myocarditis ..	—	—	—	—	—	1	—	—	—	—	—	—	—	—
Angina Pectoris ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tachycardia ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Syncope ..	—	—	—	1	—	—	—	—	—	—	—	—	—	—
Disordered action of heart	—	—	—	2	—	—	—	—	—	—	—	—	—	—
Aneurysm ..	—	—	—	2	—	—	—	—	—	—	—	—	—	—
Phlebitis ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Thrombosis of Veins..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Varicose Veins ..	—	—	—	1	—	—	—	—	—	—	—	—	—	—
Other diseases ..	2	30	—	—	12	2	2	—	—	—	2	—	—	3
(6) Respiratory System—														
Oedema Glottis ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Laryngitis ..	1	36	1	16	9	—	2	—	—	—	—	7	—	3
Bronchitis ..	279	429	720	111	2,178	639	1,054	133	152	383	299	672	296	399
Asthma ..	—	47	3	10	79	6	8	—	1	—	2	2	23	2
Carried forward ..	1,892	2,091	3,798	817	10,039	2,480	2,605	415	798	1,263	840	1,693	955	730

RETURN OF DISEASES (IN AND OUT-PATIENTS) FOR THE YEAR 1923, BY STATIONS—continued.

Disease.	Mikindani.	Morogoro.	Moshi.	Mwanza.	Namanyere.	Pangani.	Songea.	Singida.	Tabora.	Tanga.	Tunduru.	Tukuyu.	Utete.	Total.
Brought forward ..	268	1,174	4,089	1,806	1,341	499	1,725	335	2,694	2,584	1,829	2,060	658	42,854
(d) Local diseases—continued														
Other Ear diseases ..	3	4	2	41	—	—	—	1	25	93	—	—	14	635
(4) Diseases of the Nose—														
Rhinitis, Catarrhal ..	—	4	2	—	—	—	—	3	—	2	—	—	—	46
" Suppurative	—	—	—	—	—	—	—	—	—	—	—	—	—	1
N. Polypus ..	—	—	—	1	—	—	—	—	—	1	—	—	—	2
Foreign Body, Nose ..	—	—	—	—	—	—	—	—	—	1	—	—	—	1
Other Diseases of Nose	—	—	—	3	—	—	—	—	19	—	—	—	1	69
(5) Circulatory System—														
Pericarditis, Serofibrinous	—	—	—	—	—	—	—	—	—	2	—	—	—	3
" Suppurative	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Endocarditis ..	—	—	—	—	—	—	1	—	—	3	—	—	—	5
Valvular, Mitral ..	—	2	2	1	—	6	1	—	1	2	—	2	—	32
" Aortic	—	—	—	—	—	2	—	—	—	—	—	—	—	4
" Tricuspid ..	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Myocarditis ..	—	—	—	—	—	—	—	—	—	4	—	—	—	5
Angina Pectoris ..	—	—	—	—	1	—	—	—	—	—	—	—	—	1
Tachycardia ..	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Syncope ..	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Disordered action of heart	—	—	6	—	2	—	1	—	—	—	—	—	—	12
Aneurysm ..	—	—	—	—	—	—	—	—	2	1	—	—	—	3
Phlebitis ..	—	1	1	—	—	—	—	—	—	—	—	—	—	2
Thrombosis of Veins..	—	2	—	—	—	—	—	—	—	—	—	—	—	3
Varicose Veins ..	—	—	2	—	2	—	—	—	—	—	—	—	—	2
Other diseases ..	—	—	—	—	2	—	—	—	2	18	20	—	1	98
(6) Respiratory System—														
Oedema Glottis ..	—	—	—	—	—	—	—	—	—	—	—	1	—	1
Laryngitis ..	—	—	14	18	16	—	12	—	3	—	17	8	6	169
Bronchitis ..	68	322	386	357	805	171	660	147	852	1,192	342	373	227	13,646
Asthma ..	—	10	4	—	—	34	2	1	2	2	5	2	—	248
Carried forward ..	339	1,519	4,508	2,227	2,169	712	2,402	487	3,601	3,906	2,213	2,446	907	57,847

RETURN OF DISEASES (IN AND OUT-PATIENTS) FOR THE YEAR 1923, BY STATIONS—continued.

Disease.	Arusha.	Bagamoyo.	Bukoba.	European Hospital, Dar-es-Salaam.	Sewa Hadji Hospital, Dar-es-Salaam.	Dodoma.	Iringa.	Kahama.	Kigoma.	Kilossa.	Kilwa.	Kondea-Irangi.	Lindi.	Lushoto.
Brought forward ..	1,892	2,091	3,798	817	10,039	2,480	2,605	415	798	1,263	840	1,693	955	730
(d) Local diseases—continued														
Hoemoptysis ..	..	..	..	..	18	..	..	..	..	..	..	..	1	..
Tuberculosis of Lungs	..	..	8	4	20	..	1	..	1	1	..	..	..	8
Pleurisy ..	4	10	..	1	2	..	..	..	..	..	..	..	..	..
Emphyema ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Empysema ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gangrene of Lungs	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Abscess of Lungs	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Broncho-Pneumonia ..	6	..	..	..	26	..	3	..	1	..	..	4	2	5
Other Res. diseases ..	498	9	..	4	96	7	1	..	..	..	..	2	..	19
(7) Digestive System—														
Caries of Teeth	227	82	98	21	375	92	219	13	44	140	142	40	109	16
Pyorrhoea Alveolaris..	..	..	..	1	..	..	..	..	..	..	..	1	..	..
Gingivitis ..	..	..	1	4	..	..	..	..	..	..	..	..	..	..
Gum Boil ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Stomatitis ..	1	12	102	6	65	7	30	..	..	24	10	3	1	4
Caries of Jaw ..	..	..	1	..	..	..	..	..	..	..	..	..	..	..
Glossitis ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Inflammation of the Fauces	17	53	18	..	103	10	68	2	7	1	6	1	29	11
Tonsils	39	6	96	13	16	19	4	..	4	1	2	2	..	23
Peritonsillar Abscess ..	..	..	..	1	..	..	..	..	..	..	..	..	..	..
Vincent's Angina ..	..	..	..	2	..	..	..	..	..	..	..	..	..	..
Inflammation of Parotid Gland	..	..	1	..	..	..	..	..	..	..	..	..	..	..
Foreign Body in Pharynx	..	..	..	1	..	..	..	..	..	..	..	..	..	..
Pharyngitis ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gastritis ..	1	15	..	21	45	3	..	..	2	..	..	2	2	4
Hæmatemesis..	..	..	..	..	..	..	2	..	..	..	..	1	..	..
Ulceration of Stomach	1	..	1	..	..	..	..	..	1	..	..	..	..	5
Dilatation of Stomach	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Carried forward ..	2,686	2,282	4,125	899	10,805	2,622	2,933	430	858	1,430	1,000	1,749	1,090	825

RETURN OF DISEASES (IN AND OUT-PATIENTS) FOR THE YEAR 1923, BY STATIONS—continued.

Disease.	Mikindani.	Morogoro.	Moshi.	Mwanza.	Namanyere.	Pangani.	Songea.	Singidda.	Tabora.	Tanga.	Tunduru.	Tukuyu.	Uteete.	Total.
Brought forward ..	339	1,519	4,508	2,227	2,169	712	2,402	487	3,601	3,906	2,213	2,446	907	57,847
(d) Local diseases—continued														
Hoemoptysis ..	..	..	..	..	1	..	..	1	19	36	..	..	..	1
Tuberculosis of Lungs	..	7	..	..	..	..	..	4	28	28	..	..	10	97
Pleurisy ..	3	2	3	5	9	3	3	..	..	..	..	9	..	150
Empyema ..	..	..	1	..	..	..	..	..	..	..	..	..	..	3
Emphysema ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Gangrene of Lungs ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Abscess of Lungs ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Broncho-Pneumonia..	..	..	..	..	..	..	..	..	6	3	11	..	2	91
Other Res. diseases ..	..	1	8	2	..	2	1	..	3	21	..	49	5	780
(7) Digestive System—														
Caries of Teeth ..	71	79	143	99	86	95	335	19	135	245	203	573	83	3,784
Pyorrhoea Alveolaris..	..	..	7	..	..	1	..	..	..	..	..	21	..	31
Gingivitis ..	..	..	..	..	..	..	..	..	..	..	..	..	..	5
Gum Boil ..	..	..	..	..	..	..	..	..	1	..	..	..	..	1
Stomatitis ..	..	9	4	23	17	1	153	6	14	21	..	30	4	547
Caries of Jaw ..	..	..	..	..	..	..	..	1	..	..	..	..	..	1
Glossitis ..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Inflammation of the Fauces	..	..	..	..	..	..	..	..	..	..	..	..	..	..
" " Tonsils	7	7	16	7	22	12	47	5	25	213	11	..	8	706
Peritonsillar Abscess ..	2	21	15	18	3	1	38	4	513	26	11	20	8	905
Vincent's Angina ..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Inflammation of Parotid	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Gland ..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Foreign Body in Pharynx	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Pharyngitis ..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Gastritis ..	..	..	..	..	..	..	5	..	10	2	..	..	..	17
Hæmatemesis..	..	..	..	9	20	1	2	..	12	7	88	2	..	236
Ulceration of Stomach	..	..	..	..	5	..	..	..	..	..	..	..	..	8
Dilatation of Stomach	..	..	..	..	1	..	..	..	3	..	..	..	..	6
Carried forward ..	422	1,645	4,707	2,446	2,333	828	2,987	527	4,370	4,508	2,537	3,153	1,027	65,228

RETURN OF DISEASES (IN AND OUT-PATIENTS) FOR THE YEAR 1923, BY STATIONS—continued.

Disease.	Arusha.	Bagamoyo.	Bukoba.	European Hospital, Dar-es-Salaam.	Sewa Hadji Hospital, Dar-es-Salaam.	Dodoma.	Iringa.	Kahama.	Kigoma.	Kilossa.	Kilwa.	Kondoa-Irangi.	Lindi.	Lushoto.
Brought forward ..	2,686	2,282	4,125	899	10,805	2,622	2,933	430	858	1,430	1,000	1,749	1,099	825
(d) Local diseases—continued														
Stricture of Stomach ..	—	—	—	—	—	—	—	—	—	—	—	—	1	7
Dyspepsia ..	4	109	2	35	49	55	14	—	—	4	4	9	36	—
Vomiting ..	—	—	—	—	—	—	1	—	—	—	—	—	—	—
Enteritis ..	4	1	—	13	—	—	—	—	—	—	—	2	—	—
Appendicitis ..	3	2	—	—	3	1	—	—	—	—	—	—	—	—
Tuberculosis of Intestine ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Colitis ..	11	11	—	4	44	—	—	—	1	—	—	3	2	3
Ulceration of Intestines ..	—	—	3	1	—	—	—	—	—	—	—	—	—	—
Sprue ..	—	—	—	—	—	4	—	1	2	—	1	—	1	—
Hernia ..	2	3	21	3	31	—	—	—	—	—	—	—	—	—
Diarrhoea ..	161	92	73	56	423	197	271	3	33	97	21	39	45	93
Constipation ..	129	215	924	17	849	397	380	27	11	130	70	85	171	194
Colic ..	71	176	—	15	362	107	19	32	37	28	43	56	26	48
Intestinal Obstruction ..	—	—	1	1	—	—	—	—	—	—	—	—	—	—
Hæmorrhoids ..	2	12	9	2	16	2	—	—	—	—	—	—	1	3
Fistula in Ano ..	—	—	—	3	—	—	—	—	—	—	—	—	—	—
Prolapse of Rectum ..	—	—	3	—	—	—	—	—	—	—	—	—	—	—
Pancreatitis ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hepatitis (a) Acute ..	2	6	—	3	26	1	—	—	—	—	1	—	—	1
" (b) Abscess ..	1	—	—	—	—	—	1	—	—	—	—	1	—	—
Cirrhosis of Liver ..	—	—	—	—	9	—	—	—	1	—	—	—	1	—
Jaundice ..	—	12	—	—	4	—	—	1	1	—	1	—	1	—
Cholecystitis ..	—	—	—	1	—	—	—	—	—	—	—	—	—	—
Gall Stone ..	1	—	—	—	1	—	—	—	—	—	—	2	—	—
Peritonitis ..	—	—	—	—	—	—	—	—	1	—	—	—	—	—
Ascites ..	1	—	7	—	1	1	—	—	—	—	—	5	—	1
Visceroptosis ..	1	—	—	—	—	—	—	—	—	—	—	—	—	—
Other diseases of Digestive System ..	2	62	—	—	82	1	2	—	—	—	—	1	—	57
Carried forward ..	3,081	2,083	5,168	1,053	12,705	3,388	3,621	494	946	1,689	1,141	1,953	1,384	1,233

RETURN OF DISEASES (IN AND OUT-PATIENTS) FOR THE YEAR 1923, BY STATIONS—continued.

Disease.	Milkindani.	Morogoro.	Moshi.	Mwanza.	Namanyere.	Pangani.	Songea.	Singida.	Tabora.	Tanga.	Tunduru.	Tukuyu.	Utete.	Total
Brought forward	422	1,645	4,707	2,446	2,333	828	2,987	527	4,370	4,508	2,537	3,153	1,027	65,228
(d) Local diseases—continued														
Stricture of Stomach	—	—	—	—	—	—	—	—	—	—	—	—	2	10
Dyspepsia .. ..	2	—	17	18	3	1	168	13	51	134	32	43	22	825
Vomiting .. ..	—	—	—	—	—	—	—	1	—	—	—	—	—	2
Enteritis .. ..	—	—	—	—	—	—	—	—	—	—	47	—	—	65
Appendicitis .. ..	—	—	1	1	1	—	—	—	2	—	—	3	—	21
Tuberculosis of Intestine	—	1	—	—	—	—	—	—	—	—	—	—	—	1
Colitis .. ..	—	—	—	—	—	—	3	—	—	9	—	2	—	21
Ulceration of Intestines	—	—	—	—	—	—	—	—	—	—	—	—	—	5
Sprue .. ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hernia .. ..	1	2	2	10	4	4	1	—	17	70	16	2	6	206
Diarrhoea .. ..	43	248	137	190	216	22	197	27	264	229	47	194	46	3,464
Constipation .. ..	30	145	412	269	200	83	153	99	634	712	23	165	75	6,590
Colic .. ..	16	19	467	3	22	2	166	27	88	53	10	7	88	1,988
Intestinal Obstruction	—	—	—	—	—	—	—	—	—	—	—	—	—	4
Hæmorrhoids .. ..	1	4	—	3	2	2	1	—	5	9	1	—	—	73
Fistula in Ano .. ..	—	—	—	—	—	—	—	—	2	—	—	—	—	5
Prolapse of Rectum ..	—	—	—	—	—	—	—	—	—	—	—	—	—	3
Pancreatitis .. ..	—	—	1	—	—	—	—	—	—	—	—	—	—	1
Hepatitis (a) Acute ..	1	3	8	—	—	4	—	1	1	11	—	2	—	71
" (b) Abscess .. ..	—	1	—	—	—	—	—	—	—	—	—	—	—	4
Cirrhosis of Liver ..	—	1	1	1	—	1	—	—	—	3	—	1	—	19
Jaundice .. ..	—	—	1	5	2	2	—	—	1	8	7	1	3	52
Cholecystitis .. ..	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Gall Stone .. ..	—	—	—	—	—	—	—	—	—	—	—	—	—	4
Peritonitis .. ..	—	—	—	1	—	—	—	—	1	—	—	—	—	3
Ascites .. ..	—	—	4	2	—	1	—	—	—	1	—	—	2	27
Visceroptosis .. ..	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Other diseases of Digestive System .. ..	1	—	2	6	—	1	—	—	24	15	—	1	9	266
Carried forward ..	517	2,069	5,760	2,957	2,783	951	3,676	697	5,460	5,762	2,720	3,574	1,280	79,031

RETURN OF DISEASES (IN AND OUT-PATIENTS) FOR THE YEAR 1923, BY STATIONS—continued.

Disease.	Aruhsa.	Bagamoyo.	Bukoba.	European Hospital, Dar-es-Salaam.	Sewa Hadji Hospital, Dar-es-Salaam.	Dodoma.	Iringa.	Kahama.	Kigoma.	Kilossa.	Kilwa.	Kondea-Irangi.	Lindi.	Lushoto.
Brought forward ..	3,081	2,983	5,168	1,053	12,705	3,388	3,621	494	946	1,689	1,141	1,953	1,384	1,233
(d) Local diseases—continued														
(8) Lymphatic System—														
Inflammation of Lymphatic Gland ..	14	19	—	1	61	3	24	—	2	1	16	4	—	—
Suppuration Lymphatic Gland ..	1	12	16	1	2	4	2	—	7	—	1	—	1	—
Lymphangitis ..	2	—	—	1	5	1	—	—	1	—	—	—	—	2
Tuberculosis of Lymphatic G. ..	10	—	—	—	—	—	—	—	—	—	—	4	—	—
Splenitis ..	—	7	—	—	4	28	—	—	—	—	—	—	—	—
Splenomegaly ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other diseases ..	—	2	—	—	15	—	—	—	—	—	6	5	—	—
(9) Urinary System—														
Acute Nephritis ..	—	—	—	—	1	—	—	—	—	—	—	2	—	1
Chronic Nephritis ..	—	—	2	3	3	1	—	—	—	2	—	4	3	—
Renal Colic ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Pyelitis ..	1	—	—	—	—	—	—	—	—	—	—	—	—	—
Calculus ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cystitis ..	1	1	—	2	23	—	—	—	—	—	—	1	1	2
Vesical Calculus ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Suppression ..	—	—	—	—	3	—	—	—	—	—	—	—	—	—
Hæmaturia ..	—	12	2	—	1	1	2	—	—	—	—	—	1	2
Chyluria ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Extravasation of Urine ..	—	—	6	—	—	—	—	—	—	—	—	—	—	—
Urethral Fistula ..	—	—	19	3	—	—	—	—	—	—	—	—	—	—
Periurethral Abscess ..	—	—	—	1	—	—	—	—	—	—	—	—	—	—
Phosphaturia ..	—	—	—	1	—	—	—	—	—	—	—	—	—	—
Others, Urinary System ..	2	11	—	—	2	—	—	—	—	—	—	—	—	1
(10) Generative System—														
Male Organs ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Balanitis ..	4	—	—	—	—	—	—	—	—	—	—	—	—	—
Paraphimosis ..	—	—	3	—	—	—	—	—	—	—	—	—	—	—
Carried forward ..	3,116	3,047	5,217	1,066	12,825	3,426	3,649	494	956	1,692	1,164	1,973	1,300	1,242

RETURN OF DISEASES (IN AND OUT-PATIENTS) FOR THE YEAR 1923, BY STATIONS—continued.

Disease.	Milkindani.	Morogoro.	Moshi.	Mwanza.	Namanyere.	Pangani.	Songea.	Singidda.	Tabora.	Tanga.	Tunduru.	Tukuyu.	Utete.	Total.
Brought forward ..	517	2,069	5,760	2,957	2,783	951	3,676	697	5,460	5,762	2,720	3,574	1,280	79,031
(d) Local diseases—continued														
(8) Lymphatic System—														
Inflammation of Lymphatic Gland ..	6	7	19	24	19	7	1	1	33	98	8	12	2	382
Suppuration Lymphatic Gland ..	6	1	—	—	1	2	—	1	10	—	—	11	—	79
Lymphangitis ..	—	—	—	1	—	7	—	—	4	8	53	2	—	87
Tuberculosis of Lymphatic G. ..	—	—	—	—	—	—	—	—	—	—	—	—	—	10
Splenitis ..	—	—	14	—	10	—	1	1	3	4	—	8	—	85
Splenomegaly ..	—	—	—	—	—	—	—	—	6	—	—	—	—	6
Other diseases ..	—	1	—	—	—	—	—	—	—	—	—	—	—	29
(9) Urinary System—														
Acute Nephritis ..	—	2	—	—	—	—	—	—	—	12	—	1	—	19
Chronic Nephritis ..	—	—	—	—	—	1	—	4	—	5	—	1	—	28
Renal Colic ..	—	—	—	—	—	1	—	1	—	—	—	1	—	3
Pyelitis ..	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Calculus ..	—	—	2	—	—	—	—	—	—	—	—	1	—	4
Cystitis ..	—	1	—	—	1	1	—	—	4	17	3	—	—	58
Vesical Calculus ..	—	—	—	—	—	—	—	—	1	—	—	—	—	—
Suppression ..	—	—	—	—	—	—	1	—	—	—	—	—	—	4
Hæmaturia ..	—	—	2	2	3	—	—	—	—	3	1	3	—	35
Chyluria ..	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Extravasation of Urine ..	—	—	—	—	—	—	—	—	—	—	—	—	—	6
Urethral Fistula ..	—	—	—	—	—	—	—	—	3	—	—	—	—	25
Periurethral Abscess ..	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Phosphaturia ..	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Others, Urinary System ..	—	—	—	1	—	—	—	—	—	—	—	—	—	17
(10) Generative System—														
Male Organs—														
Balanitis ..	—	—	—	—	—	—	—	—	3	—	—	—	—	7
Paraphimosis ..	—	—	2	—	—	—	—	—	1	1	—	—	—	7
Carried forward ..	529	2,081	5,799	2,985	2,817	970	3,679	705	5,528	5,910	2,785	3,613	1,282	79,926

RETURN OF DISEASES (IN AND OUT-PATIENTS FOR THE YEAR 1923, BY STATIONS—continued.

Disease.	Arusha.	Bagamoyo.	Bukoba.	European Hospital, Dar-es-Salaam.	Sewa Hedji Hospital, Dar-es-Salaam.	Dodoma.	Iringa.	Kahama.	Kigoma.	Kilossa.	Kilwa.	Kondo-a-Irangi.	Lindi.	Lushoto.
Brought forward ..	3,116	3,047	5,217	1,066	12,825	3,426	3,649	494	956	1,692	1,164	1,973	1,390	1,242
(d) Local diseases—continued														
Urethritis ..	..	2	13	6	8	3	—	—	—	—	—	2	—	—
Gleet ..	8	—	35	—	1	—	—	—	—	1	—	—	—	—
Stricture ..	3	7	—	—	7	—	—	—	1	—	—	—	—	—
Prostatitis ..	..	..	..	3	—	2	15	—	3	—	2	—	4	1
Soft Chancre ..	15	13	37	—	13	—	2	1	—	—	—	4	—	—
Condyloma ..	—	6	—	—	7	—	2	—	—	—	—	—	—	—
Inflammation of Scrotum ..	..	..	..	—	—	—	—	—	—	1	—	—	—	—
Hydrocele ..	2	10	—	—	23	3	3	3	—	—	1	2	3	5
Orchitis ..	8	32	12	—	67	17	11	3	2	1	3	3	6	1
Epididymitis ..	5	—	—	2	9	1	1	4	—	—	—	—	—	—
Gangrene of Testicle ..	1	—	—	3	—	—	—	—	—	—	—	—	—	—
Mastitis (Male) ..	..	..	..	—	—	—	—	—	—	—	—	—	—	—
Varicocele ..	..	..	..	2	—	—	—	—	—	—	—	—	—	—
Cyst of Testicle ..	..	..	..	—	—	—	—	—	—	—	—	—	—	—
Hæmatocele ..	..	..	..	—	—	—	—	—	—	—	—	—	—	—
Stone in Urethra ..	..	..	..	—	—	—	—	—	—	—	—	—	—	—
Other diseases ..	9	5	—	—	14	1	—	—	—	—	—	—	—	—
Female Organs—														
Ovaritis ..	..	..	..	—	—	—	—	—	—	—	—	—	—	1
Ovarian Cyst ..	..	..	..	—	3	—	—	—	—	—	—	—	—	—
Malignant Tum. of Ovary ..	..	..	..	—	—	1	—	—	—	—	—	—	—	—
Uterine Polypus ..	..	..	..	—	—	—	—	—	—	—	—	—	—	—
Endometritis ..	..	1	—	—	4	—	—	—	1	—	—	—	1	—
Displacement of Uterus ..	..	1	—	4	1	—	—	—	—	4	—	—	—	—
Vaginitis ..	1	—	—	1	—	—	—	—	—	—	—	—	—	1
Amenorrhœa ..	..	9	—	4	—	—	—	—	—	—	—	—	1	—
Dysmenorrhœa ..	..	9	1	1	2	—	—	—	—	—	—	—	1	—
Menorrhagia ..	3	—	—	1	—	—	—	—	—	—	—	—	—	—
Leucorrhœa ..	—	—	—	—	3	—	—	—	—	—	—	—	1	—
Carried forward ..	3,171	3,142	5,315	1,093	12,987	3,455	3,681	505	763	1,699	1,174	1,984	1,406	1,253

RETURN OF DISEASES (IN AND OUT-PATIENTS) FOR THE YEAR 1923, BY STATIONS—continued.

Disease.	Mikindani.	Morogoro.	Moshi.	Mwanza.	Namanyere.	Pangani.	Songea.	Singida.	Tabora.	Tanga.	Tunduru.	Tukuyu.	Utete.	Total.
Brought forward ..	529	2,081	5,799	2,985	2,817	970	3,679	705	5,528	5,910	2,785	3,613	1,282	79,926
(d) Local diseases—continued														
Urethritis ..	—	—	3	11	1	1	—	—	1	3	—	—	—	41
Gleet ..	—	—	—	—	—	—	—	—	—	—	14	—	—	36
Stricture ..	—	1	2	—	—	—	—	—	5	24	3	3	—	91
Prostatitis ..	—	—	1	—	—	—	—	—	—	1	—	1	—	7
Soft Chancre ..	—	—	3	1	—	1	6	1	4	14	11	2	1	149
Condyloma ..	—	4	—	—	—	1	—	—	—	1	2	—	1	27
Inflammation of Scrotum ..	—	—	—	4	—	—	—	—	—	—	2	6	—	13
Hydrocele ..	—	1	—	13	1	9	—	—	19	82	—	1	12	193
Orchitis ..	3	6	12	7	8	13	3	2	10	75	10	3	8	326
Epididymitis ..	—	—	1	3	—	—	—	—	1	10	—	1	—	37
Gangrene of Testicle ..	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Mastitis (Male) ..	—	—	—	—	—	—	—	—	—	—	—	—	—	3
Varicocele ..	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Cyst of Testicle ..	—	—	—	—	—	—	—	—	—	1	—	—	—	3
Hæmatocele ..	—	—	—	—	—	—	—	—	—	8	—	—	—	1
Stone in Urethra ..	—	—	—	—	—	—	—	—	—	—	—	1	—	8
Other diseases ..	—	—	—	1	1	—	—	—	5	6	—	3	2	1
Female Organs—														
Ovaritis ..	—	—	—	1	—	—	—	—	—	—	—	—	—	47
Ovarian Cyst ..	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Malignant Tum. of Ovary ..	—	—	—	—	—	—	—	—	—	—	—	—	—	3
Uterine Polypus ..	—	—	—	—	—	—	—	—	1	—	—	—	—	1
Endometritis ..	—	1	—	—	—	—	—	—	1	—	—	—	—	2
Displacement of Uterus ..	—	—	—	—	—	—	—	—	—	1	2	—	—	9
Vaginitis ..	—	—	9	1	—	—	—	—	—	4	—	—	—	14
Amenorrhœa ..	—	—	1	—	3	1	—	—	—	—	—	—	—	16
Dysmenorrhœa ..	—	—	—	3	12	3	—	—	—	5	5	—	—	19
Menorrhagia ..	—	—	4	2	4	—	1	—	1	3	—	—	—	51
Leucorrhœa ..	—	—	1	3	—	—	1	—	—	1	—	—	3	18
Carried forward ..	—	—	—	—	—	—	—	—	—	—	—	—	3	13
	532	2,094	5,836	3,035	2,847	999	3,690	708	5,576	6,149	2,832	3,634	1,312	81,058

RETURN OF DISEASES (IN AND OUT-PATIENTS) FOR THE YEAR 1923, BY STATIONS—continued.

Disease.	Arusha.	Bagamoyo.	Bukoba.	European Hospital, Dar-es-Salaam.	Sewa Hedji Hospital, Dar-es-Salaam.	Dodoma.	Iringa.	Kahama.	Kigoma.	Kilosa.	Kilwa.	Kondoa-Irangi.	Lindi.	Lushoto.
Brought forward	3,171	3,142	5,315	1,093	12,987	3,455	3,681	505	763	1,699	1,174	1,984	1,406	1,253
(d) Local diseases—continued														
Abortion ..	—	—	6	4	4	—	1	—	—	1	—	—	1	—
Delayed Labour ..	—	—	—	2	4	—	6	—	1	—	—	—	—	—
Obstructed Labour ..	—	—	2	—	—	—	—	—	—	—	—	—	—	—
Postpartum Hæmorrhage ..	—	—	—	—	1	—	—	—	—	—	—	—	—	—
Retained Placenta ..	—	—	1	—	—	—	—	—	—	—	—	—	—	—
Premature Birth ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hydramnios ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Puerperal Septicæmia ..	—	—	—	2	1	1	—	—	—	—	—	—	—	—
Pelvic Abscess ..	—	3	—	1	—	—	—	—	—	—	1	—	—	2
Mastitis ..	2	—	—	—	—	—	4	—	—	—	—	—	—	1
Abscess of Breast ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ulcerative Granuloma of Pudenda ..	—	—	—	—	—	1	—	—	—	—	—	—	—	—
Other diseases ..	3	5	—	24	7	—	—	—	—	—	—	—	—	—
(11) Organs of Locomotion—														
Osteitis ..	1	5	—	—	—	—	—	—	—	—	—	—	—	—
Arthritis ..	11	48	50	3	10	24	56	—	63	1	22	2	14	—
Bursitis ..	—	—	—	2	11	—	—	—	—	17	2	—	1	—
Myositis ..	178	—	—	—	—	—	—	—	—	—	—	—	—	—
Osteo myelitis ..	5	—	—	—	—	—	—	—	—	—	—	—	—	—
Periostitis ..	1	—	—	—	—	—	—	—	—	—	—	—	—	—
Synovitis ..	13	—	3	7	26	4	—	—	—	—	—	3	—	—
Myalgia ..	—	—	320	28	—	33	281	57	15	—	36	265	20	1
Ankylosis ..	—	—	1	—	—	—	—	—	—	—	—	5	—	—
Caries of Bone ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ganglion ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Rheumatoid Arthritis ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tenosynovitis ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other diseases ..	11	199	—	1	417	2	—	—	—	1	9	—	—	—
Carried forward	3,396	3,402	5,698	1,167	13,468	3,520	4,029	562	842	1,719	1,244	2,259	1,442	1,258

RETURN OF DISEASES (IN AND OUT-PATIENTS) FOR THE YEAR 1923, BY STATIONS—continued.

Disease.	Mikindani.	Morogoro.	Moshi.	Mwanza.	Namanyere.	Pangani.	Songea.	Singida.	Tabora.	Tanga.	Tunduru.	Tukuyu.	Utete.	Total.
Brought forward ..	532	2,094	5,836	3,035	2,847	999	3,690	708	5,576	6,149	2,832	3,634	1,312	81,058
(d) Local diseases—continued														
Abortion ..	—	—	1	2	6	—	1	—	4	2	—	3	—	36
Delayed Labour ..	—	—	1	4	—	—	1	—	3	1	—	1	—	24
Obstructed Labour ..	—	—	—	—	—	—	—	—	—	1	—	—	—	3
Postpartum Hæmorrhage ..	—	—	1	—	—	—	—	—	—	—	—	1	—	3
Retained Placenta ..	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Premature Birth ..	—	—	—	—	1	—	—	—	—	—	—	—	—	1
Hydramnios ..	—	—	—	—	—	—	1	—	—	—	—	—	—	1
Puerperal Septicæmia ..	—	—	—	—	—	1	—	—	—	1	—	3	—	9
Pelvic Abscess ..	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Mastitis ..	—	2	—	—	11	—	—	—	7	—	4	2	—	34
Abscess of Breast ..	2	—	2	1	2	—	7	—	—	—	3	5	—	27
Ulcerative Granuloma of														
Pudenda ..	—	—	—	—	1	—	—	—	—	—	—	—	—	1
Other diseases ..	1	—	19	—	2	2	2	—	1	1	—	2	2	72
(11) Organs of Locomotion—														
Osteitis ..	1	3	—	—	28	—	—	—	1	32	7	3	—	81
Arthritis ..	—	4	4	22	156	5	7	1	64	179	15	5	5	771
Bursitis ..	—	—	2	—	2	—	1	1	—	1	2	1	—	23
Myositis ..	—	—	11	—	—	—	264	—	—	—	45	1	—	520
Osteo myelitis ..	—	—	—	—	—	—	—	—	—	—	—	—	—	5
Periostitis ..	—	—	—	—	—	—	—	—	1	2	—	—	—	4
Synovitis ..	—	1	15	6	—	14	53	14	1	—	—	6	—	166
Myalgia ..	5	51	97	—	—	49	—	4	553	1	—	187	48	2,051
Ankylosis ..	—	—	—	—	—	2	—	—	9	—	—	—	—	3
Caries of Bone ..	—	2	—	1	—	—	1	—	—	—	—	—	—	17
Ganglion ..	—	—	2	—	—	—	—	—	—	—	—	2	—	5
Rheumatoid Arthritis ..	—	—	—	1	—	—	—	—	—	—	—	—	—	1
Tenosynovitis ..	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Other diseases ..	6	1	—	48	—	3	—	1	5	54	—	1	—	758
Carried forward ..	547	2,158	5,991	3,120	3,056	1,075	4,029	729	6,225	6,425	2,908	3,857	1,367	58,677

RETURN OF DISEASES (IN AND OUT-PATIENTS) FOR THE YEAR 1923, BY STATIONS.

Disease.	Arusha.	Bagamoyo.	Bukoba.	European Hospital, Dar-es-Salaam.	Sewa Hadji Hospital, Dar-es-Salaam.	Dodoma.	Iringa.	Kahama.	Kigoma.	Kilossa.	Kilwa.	Kondoa-Irangi.	Lindi.	Lushoto.
Brought forward ..	3,396	3,402	5,698	1,167	13,468	3,520	4,029	562	842	1,719	1,244	2,259	1,442	1,258
(d) Local diseases—continued														
(12) Connective Tissue—														
Cellulitis ..	86	18	56	5	465	35	92	—	5	1	64	9	50	—
Abscess ..	49	92	80	13	220	47	19	25	15	34	25	18	19	49
Other diseases ..	7	549	2	10	418	57	—	—	—	—	14	3	—	2
(13) Diseases of Skin—														
Urticaria ..	—	1	—	4	14	1	2	—	2	—	—	1	1	—
Eczema ..	10	13	17	7	50	6	30	—	4	5	23	5	18	3
Boil ..	35	56	—	24	294	24	23	28	—	50	30	22	48	13
Carbuncle ..	1	—	—	5	9	—	—	—	—	1	1	—	—	2
Herpes ..	—	1	—	1	8	1	5	—	—	1	—	2	—	3
Psoriasis ..	1	1	1	1	2	—	5	—	—	—	—	—	—	2
Oriental Sore ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tinea ..	6	11	11	7	27	2	—	—	—	—	6	3	—	5
Scabies ..	318	77	344	—	211	149	1,035	64	31	50	125	702	112	37
Acne ..	1	—	—	1	—	1	10	—	—	—	—	—	—	—
Prickly Heat ..	1	—	—	2	5	6	—	—	—	1	—	—	—	—
Ulcers ..	860	—	883	5	—	277	—	110	82	623	579	411	760	50
Keloid ..	1	—	—	—	—	—	—	—	—	—	—	1	—	—
Seborrhoea ..	—	—	—	2	—	—	—	—	—	—	—	—	—	—
Impetigo ..	—	—	—	4	—	—	—	—	—	—	—	—	—	—
Blastomycosis ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other diseases ..	4	32	1	31	74	22	—	—	1	—	44	—	—	6
(e) Injuries (General)—														
Local ..	1,091	356	600	5	2,789	10	28	—	—	15	—	—	—	6
(f) Tumours unclassified—														
Dermoid Cyst ..	1	2	36	79	180	1,047	1,954	185	342	367	272	159	360	318
Cystic Hygroma ..	—	—	—	—	17	—	—	—	8	1	—	—	—	—
Sebaceous Cyst ..	—	—	—	—	—	—	—	—	—	—	—	1	—	—
Cyst ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Carried forward ..	5,868	4,612	7,729	1,373	18,251	5,200	7,232	974	1,332	2,868	2,427	3,596	2,810	1,754

RETURN OF DISEASES (IN AND OUT-PATIENTS) FOR THE YEAR 1923, BY STATIONS—continued.

Disease.	Milkindani.	Morogoro.	Moshi.	Mwanza.	Namanyere.	Pangani.	Songea.	Singida.	Tabora.	Tanga.	Tunduru.	Tukuyu.	Utete.	Total.
Brought forward ..	547	2,158	5,991	3,120	3,056	1,075	4,028	729	6,225	6,425	2,908	3,857	1,364	85,677
(d) Local diseases—continued														
(12) Connective Tissue—														
Cellulitis ..	9	17	92	39	85	—	—	1	33	236	—	92	17	1,507
Abscess ..	79	77	53	57	37	39	52	14	44	163	32	84	21	1,457
Other diseases ..	—	—	—	5	—	—	4	1	1	436	—	—	—	1,509
(13) Diseases of Skin—														
Urticaria ..	—	1	3	—	—	2	—	—	2	6	—	2	1	43
Eczema ..	3	6	15	35	15	22	6	—	31	49	25	121	7	526
Boil ..	13	26	26	79	27	12	106	4	64	64	13	9	39	1,129
Carbuncle ..	—	2	—	—	1	—	2	—	2	—	1	2	3	30
Herpes ..	2	—	16	—	3	—	—	1	—	1	15	1	4	66
Psoriasis ..	3	1	—	—	—	12	—	—	5	11	—	—	—	45
Oriental Sore ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tinea ..	5	8	1	—	17	—	2	4	1	10	5	—	4	135
Scabies ..	154	70	172	202	215	29	383	173	107	70	168	229	48	5,275
Acne ..	—	—	—	—	—	—	—	—	—	—	—	—	—	13
Prickly Heat ..	—	—	—	—	1	—	—	—	3	1	2	1	—	24
Ulcers ..	384	580	694	723	396	622	1,421	192	913	715	632	505	103	12,520
Keloid ..	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Seborrhoea ..	—	—	2	—	—	—	—	—	—	—	—	—	—	5
Impetigo ..	—	—	3	—	—	—	—	—	—	—	—	—	—	7
Blastomycosis ..	—	—	—	—	—	—	—	—	—	2	—	—	—	2
Other diseases ..	4	—	3	—	—	2	—	—	13	44	—	7	4	293
(e) Injuries (General)—														
Local ..	—	1	18	—	—	14	19	—	2	—	—	—	—	293
(f) Tumours unclassified—														
Dermoid Cyst ..	273	217	820	451	523	21	179	114	1,840	957	362	483	240	2,908
Cystic Hygroma ..	—	—	14	—	17	1	1	—	—	32	7	5	5	13,790
Sebaceous Cyst ..	—	—	—	—	—	—	—	—	—	—	—	—	—	146
Cyst ..	—	—	3	—	—	—	—	—	—	—	—	—	—	1
Carried forward ..	1,476	3,164	7,226	4,711	4,393	1,854	6,203	1,233	9,293	9,222	4,170	5,410	1,864	127,135

RETURN OF DISEASES (IN AND OUT-PATIENTS) FOR THE YEAR 1923, BY STATIONS—continued.

Disease.	Arusha.	Bagamoyo.	Bukoba.	European Hospital, Dar-es-Salaam.	Sewa Hadji Hospital, Dar-es-Salaam.	Dodoma.	Iringa.	Kahama.	Kigoma.	Kilossa.	Kilwa.	Kondea-Irangi.	Lindi.	Lushoto.
Brought forward ..	5,868	4,612	7,729	1,373	18,251	5,200	7,232	974	1,332	2,868	2,427	3,596	2,810	1,754
(f) <i>Tumours</i> —continued.														
Lipoma ..	1													
Papilloma ..	1													
Gumma ..						1							1	
Multiple Osteomata ..														
Fibromata (Ex.) ..														
Innocent Growth ..														
Abdominal Tumour ..														
Epulis ..														
Carcinoma Stomach ..	1													
Carcinoma Abdominal ..														
Carcinoma of Liver ..														
Epithelioma Arm ..														
"    "    of Penis ..														
(g) <i>Malformations</i> —														
Phimosis ..	2		1			2								
Supernumerary Toe ..	1	4												
Congen defect, Urethra..	1													
Atresia Vaginae ..	1													
Cleft Plate ..	1													
(h) <i>Poisons</i> —														
Belladonna ..	1												1	
Arsenic ..											1			
Food Poisoning ..														
Serum Sickness ..														
Bee Sting ..														2
Insect Bite ..		3												
Snake Bite ..		1	3						1					1
Centipede Bite ..				2				12						
Scorpion Sting ..														
Carried forward ..	5,878	4,620	7,733	1,375	18,251	5,203	7,232	986	1,333	2,868	2,429	3,596	2,812	1,757

RETURN OF DISEASES (IN AND OUT-PATIENTS) FOR THE YEAR 1923, BY STATIONS—continued.

Disease.	Mikindani.	Morotoro.	Moshi.	Mwanza.	Namanyere.	Pangani.	Songea.	Singida.	Tabora.	Tanga.	Tunduru.	Tukuyu.	Utete.	Total.
Brought forward ..	1,476	3,164	7,226	4,711	4,393	1,854	6,203	1,233	9,293	9,222	4,170	5,410	1,864	127,135
(f) Tumours continued.														
Lipoma ..	—	—	—	—	—	—	—	—	2	—	—	9	—	12
Papilloma ..	—	—	—	—	—	—	—	1	—	—	—	1	—	3
Gumma ..	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Multiple Osteomata ..	—	—	—	1	—	—	—	—	—	—	—	—	—	1
Fibromata (Ex.) ..	—	—	—	2	—	—	—	—	3	—	—	2	—	7
Innocent Growth ..	—	—	—	1	—	—	—	—	—	—	—	—	—	1
Abdominal Tumour ..	—	—	—	1	—	—	—	—	—	—	—	—	—	1
Epulis ..	—	—	—	—	—	—	—	—	2	—	—	—	—	2
Carcinoma Stomach ..	—	—	—	1	—	—	—	—	—	—	—	—	—	2
Carcinoma Abdominal ..	—	—	1	—	—	—	—	—	—	—	—	—	—	1
Carcinoma of Liver ..	—	—	2	—	—	—	—	—	—	—	—	—	—	2
Epithelioma Arm ..	—	—	1	—	—	—	—	—	—	—	—	—	—	1
Epithelioma Penis ..	—	—	—	1	—	—	—	—	—	—	—	—	—	1
(g) Malformations—														
Phimosis ..	—	—	—	—	—	4	—	—	2	14	—	2	—	31
Supernumerary Toe ..	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Congen defect, Urethra ..	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Atresia Vaginæ ..	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Cleft Plate ..	—	—	—	—	—	—	—	—	—	—	—	—	—	1
(h) Poisons—														
Belladonna ..	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Arsenic ..	—	—	—	—	—	—	—	—	1	—	—	—	—	1
Food Poisoning ..	—	—	—	—	—	—	—	—	3	—	—	—	—	4
Serum Sickness ..	—	—	1	—	—	—	—	—	—	—	—	—	—	1
Bee Sting ..	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Insect Bite ..	—	—	—	—	—	—	—	—	—	—	—	—	—	3
Snake Bite ..	1	1	—	—	—	2	—	—	7	7	—	1	10	36
Centipede Bite ..	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Scorpion Sting ..	—	—	—	—	—	—	—	1	12	—	—	—	—	25
Carried forward ..	1,477	3,165	7,931	4,718	4,393	1,860	6,203	1,235	9,325	9,243	4,170	5,425	1,874	127,282

RETURN OF DISEASES (IN AND OUT-PATIENTS) FOR THE YEAR 1923, BY STATIONS—continued.

Disease.	Arusha.	Bagamoyo.	Bukoba.	European Hospital, Dar-es-Salaam.	Sewa Hadji Hospital, Dar-es-Salaam.	Dodoma.	Iringa.	Kahama.	Kigoma.	Kilossa.	Kilwa.	Kondoa-Irangi.	Lindi.	Lushoto.
Brought forward ..	5,878	4,620	7,733	1,375	18,257	5,203	7,232	986	1,333	2,868	2,429	3,596	3,596	1,757
(h) Poisons—continued ..	3	—	—	—	3	3	—	—	1	—	—	—	—	—
(i) Parasites—Animal—														
Unclassified ..	—	—	3	—	—	—	—	—	—	—	—	—	—	—
(1) Protozoa ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(2) Trematoda (Flukes)—														
(a) Schist. hæmatobium ..	4	—	—	—	8	3	—	—	—	—	—	—	—	—
(b) Schist. mansoni ..	—	—	—	—	—	1	—	—	—	—	—	—	—	—
(c) Unclassified ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(3) Cestoda ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tænia Solium ..	2	—	20	3	15	9	4	—	—	—	2	39	—	31
" Saginata ..	—	—	133	—	2	21	8	—	—	—	—	—	—	2
" Unclassified ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(4) Nematoda ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ascaris ..	682	—	39	1	1	5	5	—	—	1	—	1	—	—
Trichocephalus Dispar ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dracunculus ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Filaria (a) m.f. Bancrofti ..	—	—	—	—	17	—	—	—	2	—	—	—	—	—
(i) Elephantiasis of Leg ..	—	—	—	—	1	—	—	—	—	—	—	—	—	1
(ii) " Scrotum ..	1	—	—	—	9	—	—	—	—	—	—	1	—	—
(ii) " Clitoris ..	—	—	—	—	2	1	—	—	—	—	—	—	—	—
(iv) " Unclassified ..	—	5	8	—	—	—	—	—	—	—	—	—	—	—
(b) f. loa ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Strongylus ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ankylostomiasis ..	13	74	—	2	130	—	3	—	6	46	56	14	16	4
Oxyuris ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(5) Insecta ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Myiasis ..	1	—	—	1	—	—	—	—	—	2	2	1	—	—
Chiggers (D. penetrans) ..	1	105	10	—	22	—	—	—	3	—	64	—	61	—
Under observation ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total ..	6,585	4,804	7,946	1,382	18,465	5,246	7,252	986	1,345	2,917	2,553	2,652	2,800	1,795

NOTES.—The totals do not include 57 accouchments included in return on page .

RETURN OF DISEASES (IN AND OUT-PATIENTS) FOR THE YEAR 1923, BY STATIONS—continued.

Disease.	Mikindani.	Morogoro.	Moshi.	Mwanza.	Namanyere.	Pangani.	Songea.	Singida.	Tabora.	Tanga.	Tunduru.	Tukuyu.	Ute.	Total.
Brought forward ..	1,477	3,165	7,931	4,718	4,393	1,860	6,203	1,235	9,325	9,243	4,170	5,425	1,874	127,282
(h) Poisons—continued														
Unspecified ..	—	—	—	—	1	—	—	—	—	—	—	—	6	17
(i) Parasites—Animal—														
Unspecified ..	—	—	—	—	2	—	—	—	—	—	—	—	—	5
(1) Protozoa ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
(2) Trematoda (Flukes)—														
(a) Schist. hematobium	—	—	—	1	29	—	—	1	1	6	—	4	—	57
(b) Schist. mansoni ..	—	1	—	—	—	—	—	—	—	108	—	4	—	2
(c) Unclassified ..	—	—	—	—	—	—	—	—	—	—	—	—	—	112
(3) Cestoda ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Tenia Solium ..	—	27	40	3	3	—	2	3	8	8	4	—	8	219
„ Saginata ..	—	—	471	—	—	—	1	—	—	—	47	94	3	323
„ Unclassified ..	—	—	—	—	—	—	—	—	—	—	—	—	—	471
(4) Nematoda ..	—	—	—	—	6	1	—	2	2	5	126	21	—	1
Ascaris ..	—	1	922	1	—	—	—	—	—	—	—	—	—	1,825
Trichocephalus dispar ..	—	2	—	—	—	—	—	—	—	—	—	—	—	3
Dracunculus ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Filaria (a) m.f. Bancrofti	—	—	—	—	—	—	—	—	1	—	17	—	—	37
(i) Elephantiasis of Leg	—	—	3	1	3	1	—	—	4	1	—	—	—	15
(ii) „ Scrotum ..	—	—	—	58	—	2	—	7	20	26	—	2	—	125
(iii) „ Clitoris ..	—	—	—	6	—	7	—	—	1	11	76	4	1	1
(iv) „ Unclassified	—	—	3	—	—	—	—	—	—	—	—	—	—	125
(b) f. loa ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Strongylus ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ankylostomiasis ..	2	43	32	2	13	334	4	—	2	1,546	70	2	10	2,410
Oxyuris ..	—	—	—	—	1	—	—	—	—	—	—	1	—	16
(5) Insecta ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Myiasis ..	—	—	11	—	—	—	—	—	—	2	—	—	—	19
Chiggers (D. penetrans)	64	1	—	3	—	105	—	—	—	4	—	10	—	454
Under observation ..	—	—	—	—	—	—	—	—	—	—	—	16	—	16
Total ..	1,453	3,240	9,413	4,793	4,451	2,310	6,210	1,248	9,361	10,960	4,510	5,583	1,902	133,535

2. Returns from Mahenge and Musoma not received in time for inclusion.

TABLE XI.

RETURNS OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS)  
FOR THE YEAR 1923.

Diseases.	In-Patients.					Out-Patients.			Total cases In and Out-Patients.
	Remain- ing in Hospital at the end of 1922.	Yearly Total.		Total cases treated.	Remain- ing in Hospital at the end of 1923.	Males.	Females.	Total.	
		Admis- sions.	Deaths.						
(a) <i>Infective Diseases</i> —									
Beri Beri .. ..	1	1	—	2	—	—	—	—	2
Cerebro-spinal Fever .. ..	—	9	7	9	—	—	—	—	9
Chicken Pox... ..	4	206	1	210	5	34	—	34	244
Cholera .. ..	—	—	—	—	—	—	—	—	—
Dengue .. ..	—	9	—	9	—	—	—	—	9
Diphtheria .. ..	—	—	—	—	—	—	—	—	—
Dysentery—									
(a) Amœbic .. ..	1	138	5	139	4	42	10	52	191
(b) Bacillary .. ..	4	45	1	49	1	21	8	29	78
(c) Unclassified .. ..	—	3	—	3	—	39	7	46	49
Endocarditis-infective .. ..	—	—	—	—	—	—	—	—	—
Enteric Fever .. ..	—	20	3	20	1	—	—	—	20
Paratyphoid Fever .. ..	1	—	—	1	—	—	—	—	1
Erysipelas .. ..	—	5	—	5	—	11	—	11	16
Gangrene .. ..	—	1	—	1	—	—	—	—	1
Gangosa .. ..	—	3	—	3	1	6	2	8	11
Gonorrhœa .. ..	40	434	2	474	26	1,123	190	1,313	1,787
Influenza .. ..	6	663	16	669	7	1,795	708	2,503	3,172
Kala Azar .. ..	—	—	—	—	—	—	—	—	—
Leprosy—									
(a) Nodular .. ..	1	11	1	12	1	13	10	23	35
(b) Anæsthetic .. ..	—	9	—	9	5	9	1	10	19
(c) Unclassified .. ..	—	1	—	1	—	—	—	—	1
Malaria—									
(a) Tertian .. ..	18	1,305	6	1,323	17	4,565	978	5,543	6,866
(b) Quartan .. ..	1	14	—	15	—	9	—	9	24
(c) Æstivo- autumnal .. ..	9	1,656	8	1,665	8	5,270	406	5,676	7,341
(d) Chronic Malaria .. ..	—	26	1	26	1	58	28	86	112
(e) Black-water .. ..	1	35	10	36	1	3	—	3	35
(f) Cerebral .. ..	—	2	2	2	—	—	—	—	2
(g) Unclassified .. ..	3	292	—	295	2	3,643	646	4,289	4,584
Measles .. ..	1	16	—	17	—	7	2	9	26
Mumps .. ..	—	64	—	64	4	22	6	28	92
Mycetoma .. ..	—	4	—	4	1	2	—	2	6
Malta Fever .. ..	1	—	—	1	—	—	—	—	1
Pellagra .. ..	—	—	—	—	—	—	—	—	—
Plague .. ..	—	1	1	1	—	—	—	—	1
Pneumonia, Acute									
Lobar .. ..	5	301	59	306	3	43	19	62	368
Pyogenic Infection—									
(a) Abscess .. ..	1	6	1	7	2	—	—	—	7
(b) Osteomyelitis .. ..	—	—	—	—	—	—	—	—	—
(c) Pyoemia .. ..	—	—	—	—	—	—	—	—	—
Rabies .. ..	—	—	—	—	—	—	—	—	—
Relapsing (Tick) Fever .. ..	—	91	—	91	2	28	—	28	119
Rheumatic Fever .. ..	—	22	1	22	2	37	11	48	70
Rubella .. ..	1	—	—	1	—	—	—	—	1
Sand-fly Fever .. ..	—	—	—	—	—	—	—	—	—
Septicæmia .. ..	1	5	4	6	—	—	—	—	6
Carried forward .. ..	99	5,398	129	5,497	94	16,777	3,032	19,809	25,306

Some cases of Blackwater Fever were transferred from one station to another and thus appear under two stations. The total number of cases is 35 as stated.

TABLE XI.—*continued.*

RETURNS OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS)  
FOR THE YEAR 1923—*continued.*

Diseases.	In-Patients.					Out-Patients.			Total cases In and Out- Patients
	Remain- ing in Hospital at the end of 1922.	Yearly Total.		Total cases treated.	Remain- ing in Hospital at the end of 1923.	Males.	Females.	Total.	
		Admis- sions.	Deaths.						
Brought forward ..	99	5,398	129	5,497	94	16,777	3,032	19,809	25,306
<i>Infective Diseases—</i> continued									
Seven Days' Fever ..	—	7	—	7	—	—	—	—	7
Trypanosomiasis (Sleeping Sickness)	—	3	3	3	—	—	—	—	3
Small-pox .. ..	—	23	3	23	—	1	1	2	25
Syphilis—									
(a) Primary ..	28	321	—	349	14	316	51	367	716
(b) Secondary ..	35	432	3	467	38	877	344	1,221	1,688
(c) Inherited ..	2	137	5	139	29	78	36	114	253
(d) Tertiary ..	—	1	—	1	6	6	3	9	10
Tetanus .. ..	—	5	1	5	—	—	—	—	5
Tuberculosis ..	5	86	28	91	5	59	12	71	162
Vaccinia .. ..	—	—	—	—	—	—	—	—	5
Whooping Cough ..	—	20	2	20	—	17	4	21	41
Yaws .. ..	96	998	12	1,094	88	1,866	656	2,522	3,616
P.U.O. .. ..	—	179	—	179	3	224	33	257	436
Others .. ..	—	3	—	3	—	—	—	—	3
(b) <i>Intoxications—</i>									
Alcoholism .. ..	—	2	—	2	—	—	—	—	2
Morphinism .. ..	—	—	—	—	—	—	—	—	—
Others .. ..	—	1	—	1	—	—	—	—	1
(c) <i>General Diseases—</i>									
Anæmia .. ..	4	66	5	70	9	334	194	528	598
Anæmia-Pernicious	1	1	1	2	—	4	2	6	8
Diabetes .. ..	1	2	1	3	1	4	—	4	7
Exophthalmic Goitre	—	1	—	1	—	2	—	2	3
Gout .. ..	—	2	—	2	1	22	—	22	24
Leucocythæmia ..	—	—	—	—	—	—	—	—	—
Hodgkin's Disease ..	—	1	—	1	—	—	—	—	1
Myxœdema .. ..	—	—	—	—	—	—	—	—	—
Purpura .. ..	—	1	—	1	1	1	—	1	2
Rickets .. ..	—	—	—	—	—	1	4	5	5
Scurvy .. ..	—	11	2	11	1	6	—	6	17
Goitre, parenchy- matous .. ..	—	1	—	1	—	4	3	7	8
Starvation .. ..	1	1	1	2	—	—	—	—	2
Debility .. ..	—	45	5	45	1	89	9	98	143
Hæmophilia .. ..	—	1	1	1	—	—	—	—	1
Other General Diseases	2	36	3	38	3	190	43	233	271
(d) <i>Local Diseases—</i>									
(i) Nervous System—									
Neuritis .. ..	2	35	—	37	1	264	82	346	383
Meningitis .. ..	—	4	3	4	—	4	—	4	8
Myelitis .. ..	—	—	—	—	—	1	—	1	1
Hydrocephalus ..	—	—	—	—	—	—	—	—	—
Encephalitis ..	—	—	—	—	—	—	—	—	—
Abscess of Brain ..	—	1	1	1	—	—	—	—	1
Congestion of Brain	—	—	—	—	—	5	—	5	5
Tubercular Meningitis	—	1	1	1	—	—	—	—	1
Locomotor Ataxia ..	—	—	—	—	—	1	—	1	1
Cerebral Thrombosis	—	1	1	1	—	—	—	—	1
Other Diseases ..	—	7	1	7	—	34	6	40	47
Apoplexy .. ..	—	5	1	5	—	—	—	—	5
Paralysis .. ..	3	20	—	23	3	25	1	26	49
Chorea .. ..	—	1	—	1	—	3	—	3	4
Carried forward ..	279	7,860	213	8,139	292	21,218	4,518	25,736	38,875

TABLE XI.—*continued.*

RETURNS OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS)  
FOR THE YEAR 1923—*continued.*

Diseases.		In-Patients.				Out-Patients.			Total cases In and Out-Patients.	
		Remain- ing in Hospital at the end of 1922.	Yearly Total.		Total cases treated.	Remain- ing in Hospital at the end of 1923.	Males.	Females.		Total.
			Admis- sions.	Deaths.						
Brought forward ..		279	7,860	213	8,139	292	21,218	4,518	25,736	33,875
Local Diseases— continued.										
Sub-Section II	Epilepsy .. ..	2	34	3	36	5	33	15	48	84
	Neuralgia .. ..	2	59	—	61	1	1,299	168	1,467	1,528
	Hysteria .. ..	—	—	—	—	—	2	5	7	7
	Headache .. ..	—	7	—	7	—	161	26	187	194
	Ncurasthenia ..	—	15	—	15	—	22	4	26	41
	Migraine .. ..	—	—	—	—	—	5	3	8	8
	Aphasia .. ..	—	1	—	1	—	1	—	1	2
	Insomnia .. ..	—	1	—	1	—	3	2	5	6
	Infantile Paralysis ..	—	—	—	—	—	1	—	1	1
	Torticollis .. ..	—	—	—	—	—	1	—	1	1
	Aural Vertigo .. ..	—	—	—	—	—	2	—	2	2
	Vertigo .. ..	—	—	—	—	—	1	—	1	1
Sub-Section III	Other Diseases ..	1	15	1	16	2	99	10	109	125
	Mental Diseases—									
	Idiocy .. ..	—	1	—	1	—	1	—	1	2
	Mania .. ..	—	8	—	8	1	4	4	8	16
	Melancholia .. ..	—	2	1	3	—	1	—	1	4
	Dementia .. ..	—	2	1	2	—	—	—	—	2
	Delusional Insanity	—	3	—	3	—	2	2	4	7
	G.P.I. .. ..	1	—	—	1	—	—	—	—	1
	Other Mental Diseases	—	8	—	8	—	4	1	5	13
	(2) Diseases of the Eye—									
	Conjunctivitis ..	6	340	—	346	9	3,273	962	4,235	4,581
	Keratitis .. ..	1	13	—	14	—	29	10	39	53
Ulceration of Cornea	1	11	—	12	1	54	9	63	75	
Iritis .. ..	—	10	—	10	1	40	5	45	55	
Optic Neuritis ..	—	1	—	1	—	—	—	—	1	
Cataract .. ..	—	15	1	15	1	22	9	31	46	
Pterygium .. ..	—	—	—	—	—	1	1	2	2	
Entropion .. ..	—	2	—	2	1	—	—	—	2	
Glaucoma .. ..	—	3	—	3	1	—	—	—	3	
Hordeolum .. ..	—	—	—	—	—	5	—	5	5	
Blepharitis .. ..	—	—	—	—	—	1	1	2	2	
Intra-ocular Hæmorrhage	—	1	—	1	—	1	—	1	2	
Ophthalmia Neonatorum	—	1	—	1	—	—	1	1	2	
Trachoma .. ..	—	6	—	6	—	37	7	44	50	
Panophthalmitis ..	1	2	—	3	—	—	—	—	3	
Other Eye Diseases..	2	49	—	51	6	356	63	419	470	
(3) Diseases of the Ear—	Inflammation of Ext. Ear .. ..	—	9	—	9	—	790	248	1,038	1,047
	Inflammation of Mid- dle Ear .. ..	—	18	1	18	1	391	118	509	527
	Inflammation of Mas- toid .. ..	—	1	—	1	—	—	—	—	1
	Furuncu'osis .. ..	—	2	—	2	—	5	—	5	7
	Other Ear Diseases	—	—	—	—	—	541	94	635	635
	(4) Diseases of the Nose—									
	Rhinitis, Catarrhal ..	—	4	—	4	—	39	3	42	46
Carried forward ..		204	8,504	221	8,801	322	28,445	6,289	34,734	43,535

TABLE XI.—*continued.*

RETURNS OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS)  
FOR THE YEAR 1923—*continued.*

Diseases.	In-Patients.					Out-Patients.			Total cases In and Out-Patients.
	Remain- ing in Hospital at the end of 1922.	Yearly Total.		Total cases treated.	Remain- ing in Hospital at the end of 1923.	Males.	Females.	Total.	
		Admis- sions.	Deaths.						
Brought forward ..	297	8,504	221	8,801	322	28,445	6,289	34,734	43,535
<i>Local Diseases—</i> <i>continued.</i>									
Rhinitis, Suppurative ..	—	—	—	—	—	1	—	1	1
N. Polypus ..	—	—	—	—	—	1	1	2	2
Foreign Body, Nose ..	—	—	—	—	—	1	—	1	1
Other Diseases of the Nose ..	—	8	—	8	1	56	5	61	69
(5) Circulatory System—									
Pericarditis, Sero-fibrinous ..	—	—	—	—	—	1	2	3	3
Pericarditis, Suppurative ..	—	1	1	1	—	—	—	—	1
Endocarditis ..	—	1	1	1	—	4	—	4	5
Valvular, Mitral ..	—	19	9	19	—	8	5	13	32
„ Aortic ..	1	1	1	2	—	2	—	2	4
„ Tricuspid ..	1	—	—	1	—	—	—	—	1
Myocarditis ..	—	2	2	2	—	2	1	3	5
Angina Pectoris ..	—	—	—	—	—	—	1	1	1
Tachycardia ..	—	1	—	1	—	—	—	—	1
Syncope ..	—	2	—	2	—	—	—	—	2
Disordered action of Heart ..	—	2	—	2	—	8	2	10	12
Aneurism ..	—	3	—	3	—	—	—	—	3
Phlebitis ..	—	1	—	1	—	1	—	1	2
Thrombosis of Veins ..	—	3	—	3	—	—	—	—	3
Varicose Veins ..	—	—	—	—	—	2	—	2	2
Other Diseases ..	—	13	2	13	1	65	20	85	98
(6) Respiratory System—									
Œdema Glottidis ..	—	1	1	1	—	—	—	—	1
Laryngitis ..	1	14	—	15	2	127	27	154	169
Bronchitis ..	13	518	4	531	4	10,828	2,287	13,115	13,646
Asthma ..	1	30	2	31	1	158	59	217	248
Hæmoptysis ..	—	—	—	—	—	1	—	1	1
Tuberculosis of Lungs ..	1	48	20	49	1	40	8	48	97
Pleurisy ..	2	71	3	73	2	73	4	77	150
Empyema ..	—	3	1	3	—	—	—	—	3
Emphysema ..	—	—	—	—	—	—	—	—	—
Gangrene of Lungs ..	—	—	—	—	—	—	—	—	—
Abscess of Lungs ..	—	—	—	—	—	—	—	—	—
Broncho-Pneumonia ..	1	40	15	41	1	43	7	50	91
Other Respiratory Diseases ..	1	57	—	58	2	619	103	722	780
(7) Digestive System—									
Caries of Teeth ..	—	19	—	19	—	2,654	1,111	3,765	3,784
Pyorrhœa Alveolaris ..	—	—	—	—	—	26	5	31	31
Gingivitis ..	—	1	—	1	—	4	—	4	5
Gum Boil ..	—	—	—	—	—	1	—	1	1
Stomatitis ..	1	14	—	15	—	391	141	532	547
Caries of Jaw ..	—	1	—	1	—	—	—	—	1
Glossitis ..	—	—	—	—	—	1	—	1	1
Inflammation of the Fauces ..	—	17	—	17	—	573	116	689	706
Inflammation of Tonsils ..	1	268	—	269	2	534	102	636	905
Carried forward ..	321	9,663	283	9,984	339	44,670	10,296	54,966	64,950

TABLE XI.—*continued.*

RETURNS OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS)  
FOR THE YEAR 1923—*continued.*

Diseases.	In-Patients.					Out-Patients.			Total cases In and Out-Patients.
	Remain- ing in Hospital at the end of 1922.	Yearly Total.		Total cases treated.	Remain- ing in Hospital at the end of 1923.	Males.	Females.	Total.	
		Admis- sions.	Deaths.						
Brought forward ..	321	9,663	283	9,984	339	44,670	10,296	54,966	64,950
<i>Local Diseases—</i> <i>continued.</i>									
Peritonsilar Abscess	—	1	—	1	—	—	—	—	1
Vincent's Angina ..	—	2	—	2	—	—	—	—	2
Inflammation of Parotid Gland ..	—	1	—	1	1	—	—	—	1
Foreign Body in Pharynx .. ..	—	—	—	—	—	1	—	1	1
Pharyngitis .. ..	—	—	—	—	—	12	5	17	17
Gastritis .. ..	1	41	1	42	1	157	37	194	236
Hæmatemesis .. ..	—	3	—	3	—	4	1	5	8
Ulceration of Stomach	—	2	—	2	—	4	—	4	6
Dilatation of Stomach	—	—	—	—	—	6	—	6	6
Stricture of Stomach	—	1	—	1	1	7	2	9	10
Dyspepsia .. ..	—	22	—	22	2	606	197	803	825
Vomiting .. ..	—	—	—	—	—	1	1	2	2
Enteritis .. ..	—	11	1	11	—	41	13	54	65
Appendicitis .. ..	—	13	1	13	—	7	1	8	21
Tuberculosis of Intestines .. ..	—	1	1	1	—	—	—	—	1
Colitis .. ..	—	21	—	21	1	59	12	71	92
Ulceration of Intestines .. ..	—	2	—	2	—	3	—	3	5
Sprue .. ..	—	—	—	—	—	—	—	—	—
Hernia .. ..	9	132	6	141	16	63	2	65	206
Diarrhœa .. ..	7	534	27	541	15	2,463	460	2,923	3,464
Constipation .. ..	—	205	2	205	1	5,452	933	6,385	6,590
Colic .. ..	—	130	1	130	2	1,559	299	1,858	1,988
Intestinal Obstruction	—	4	3	4	—	—	—	—	4
Hæmorrhoids .. ..	—	15	—	15	1	53	5	58	73
Fistula in Ano .. ..	—	3	—	3	—	2	—	2	5
Prolapse of Rectum	—	1	—	1	—	2	—	2	3
Pancreatitis .. ..	—	—	—	—	—	1	—	1	1
Hepatitis—									
(a) Acute .. ..	—	23	—	23	2	34	14	48	71
(b) Abscess .. ..	—	2	1	2	1	2	—	2	4
Cirrhosis of Liver ..	1	9	5	10	3	7	2	9	19
Jaundice .. ..	—	7	—	7	1	35	10	45	52
Cholecystitis .. ..	—	1	—	1	—	—	—	—	1
Gall Stone .. ..	—	3	—	3	—	1	—	1	4
Peritonitis .. ..	—	3	2	3	—	—	—	—	3
Ascites .. ..	—	14	4	14	2	10	3	13	27
Visceroptosis .. ..	—	—	—	—	—	—	1	1	1
Other Disease of Digestive System ..	2	21	—	23	—	217	26	243	266
(8) Lymphatic System—									
Inflammation of Lym- phatic Gland ..	5	82	—	87	2	261	34	295	382
Suppuration of Lym- phatic Gland ..	1	34	—	35	1	37	7	44	79
Lymphangitis .. ..	1	24	1	25	1	46	16	62	87
Tuberculosis of .. ..	1	2	—	3	1	5	2	7	10
Splenitis [Lymph. G.	—	6	1	6	—	63	16	79	85
Elephantiasis .. ..	—	—	—	—	—	—	—	—	—
Splenomegaly .. ..	—	6	—	6	—	—	—	—	6
Carried forward ..	349	11,045	340	11,394	394	55,891	12,395	68,286	79,680

TABLE XI.—*continued.*

RETURNS OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS)  
FOR THE YEAR 1923—*continued.*

Diseases.	In-Patients.					Out-Patients.			Total cases In and Out- Patients.
	Remain- ing in Hospital at the end of 1922.	Yearly Total.		Total cases treated.	Remain- ing in Hospital at the end of 1923.	Males.	Females.	Total.	
		Admis- sions.	Deaths.						
Brought forward ..	349	11,045	340	11,394	394	55,891	12,395	68,286	79,680
<i>Local Diseases—</i> <i>continued.</i>									
Other Diseases ..	—	10	—	10	—	18	1	19	29
(9) Urinary System—									
Acute Nephritis ..	—	9	3	9	1	10	—	10	19
Chronic Nephritis ..	—	19	6	19	1	5	4	9	28
Renal Colic ..	—	1	—	1	—	2	—	2	3
Pyelitis ..	—	—	—	—	—	—	1	1	1
Calculus ..	—	1	—	1	—	2	1	3	4
Cystitis ..	2	12	3	14	3	43	1	44	58
Vesical Calculus ..	—	—	—	—	—	—	—	—	—
Suppression ..	—	3	—	3	—	1	—	1	4
Hæmaturia ..	1	2	—	3	—	32	—	32	35
Chyluria ..	—	—	—	—	—	1	—	1	1
Extravasation of Urine ..	—	5	2	5	2	1	—	1	6
Urethral Fistula ..	1	18	—	19	—	6	—	6	25
Periurethral Abscess ..	—	1	—	1	—	—	—	—	1
Phosphaturia ..	—	—	—	—	—	1	—	1	1
Others, Urinary System ..	—	3	—	3	—	14	—	14	17
(10) Generative System—									
Male Organs—									
Balanitis ..	—	7	—	7	—	—	—	—	7
Paraphymosis ..	—	5	—	5	—	2	—	2	7
Urethritis ..	—	2	—	2	—	39	—	39	41
Gleet ..	—	6	—	6	—	30	—	30	36
Stricture ..	3	40	1	43	5	48	—	48	91
Prostatitis ..	—	6	—	6	—	1	—	1	7
Soft Chancre ..	9	55	—	64	2	85	—	85	149
Condyloma ..	1	10	—	11	—	16	—	16	27
Inflammation of Scrotum ..	—	1	—	1	1	12	—	12	13
Hydrocele ..	8	128	—	136	11	57	—	57	193
Orchitis ..	3	85	1	88	6	238	—	238	326
Epididymitis ..	—	14	—	14	—	23	—	23	37
Gangrene of Testicle ..	—	2	1	2	—	—	—	—	2
Mastitis, Male ..	—	1	—	1	—	2	—	2	3
Varicocele ..	—	—	—	—	—	2	—	2	2
Cyst of Testicle ..	1	—	—	1	—	—	—	—	1
Hæmatocele ..	3	5	—	8	—	—	—	—	8
Stone in Urethra ..	—	1	—	1	—	—	—	—	1
Other Diseases ..	—	24	—	24	—	23	—	23	47
Female Organs—									
Ovaritis ..	—	—	—	—	—	—	2	2	2
Ovarian Cyst ..	—	1	—	1	—	—	2	2	3
Malignant Tum. of Ovary ..	—	1	1	1	—	—	—	—	1
Uterine Polypus ..	—	1	—	1	—	—	1	1	2
Endometritis ..	—	4	—	4	—	—	5	5	9
Displacement of Uterus ..	—	11	—	11	2	—	3	3	14
Vaginitis ..	—	3	—	3	—	—	13	13	16
Amenorrhœa ..	—	—	—	—	—	—	19	19	19
Dysmenorrhœa ..	—	4	—	4	—	—	47	47	51
Carried forward ..	381	11,546	358	11,927	428	56,605	12,495	69,100	81,027

TABLE XI.—*continued.*

RETURNS OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS)  
FOR THE YEAR 1923—*continued.*

Diseases.	In-Patients.					Out-Patients.			Total cases In and Out- Patients.
	Remain- ing in Hospital at the end of 1922.	Yearly Total.		Total cases treated.	Remain- ing in Hospital at the end of 1923.	Males.	Females.	Total.	
		Admis- sions.	Deaths.						
Brought forward ..	381	11,546	358	11,927	428	56,605	12,495	69,100	81,027
<i>Local Diseases—</i> continued.									
Menorrhagia ..	—	7	—	7	—	—	11	11	18
Leucorrhœa ..	1	—	—	1	—	—	12	12	13
Abortion ..	—	24	—	24	—	—	12	12	36
Delayed Labour ..	—	22	5	22	—	—	2	2	24
Obstructed Labour Postpartum	—	3	2	3	—	—	—	—	3
Hæmorrhage ..	—	2	—	2	—	—	1	1	3
Retained Placenta ..	—	1	—	1	—	—	—	—	1
Premature Birth ..	—	—	—	—	—	—	1	1	1
Hydramnios ..	—	1	—	1	1	—	—	—	1
Puerperal Septicæmia	—	6	1	6	—	—	3	3	9
Pelvic Abscess ..	—	1	—	1	—	—	—	—	1
Mastitis ..	—	4	—	4	1	—	30	30	34
Abscess of Breast ..	—	1	—	1	—	—	26	26	27
Ulcerative Granuloma of Pudenda ..	1	—	—	1	—	—	—	—	1
Other Diseases— (11) Organs of Locomotion—	—	13	1	13	—	—	59	59	72
Osteitis ..	3	20	4	23	2	49	9	58	81
Arthritis ..	4	105	1	109	2	545	117	662	771
Bursitis ..	—	8	—	8	—	14	1	15	23
Myositis ..	—	31	—	31	—	384	105	489	520
Osteo myelitis ..	—	5	—	5	2	—	—	—	5
Periostitis ..	—	2	—	2	—	2	—	2	4
Synovitis ..	1	52	—	53	1	96	17	113	166
Myalgia ..	—	113	—	113	—	1,699	239	1,938	2,051
Ankylosis ..	—	2	—	2	—	1	—	1	3
Caries of Bone ..	—	11	—	11	—	6	—	6	17
Ganglion ..	—	2	—	2	—	3	—	3	5
Rheumatoid Arthritis ..	—	1	—	1	—	—	—	—	1
Tenosynovitis ..	—	—	—	—	—	—	1	1	1
Other Diseases ..	2	77	—	79	1	591	88	679	758
(12) Connective Tissue—									
Cellulitis ..	8	210	3	218	5	1,166	123	1,289	1,507
Abscess ..	7	310	2	317	10	995	145	1,140	1,457
Other Diseases ..	37	312	6	349	49	1,073	87	1,160	1,509
(13) Diseases of Skin—									
Urticaria ..	—	5	—	5	—	31	7	38	43
Eczema ..	2	34	—	36	1	385	105	490	526
Boil ..	1	95	—	96	2	933	100	1,033	1,129
Carbuncle ..	1	14	1	15	—	13	2	15	30
Herpes ..	1	12	—	13	1	42	11	53	66
Psoriasis ..	—	1	—	1	1	40	4	44	45
Oriental Sore ..	—	—	—	—	—	—	—	—	—
Tinea ..	—	8	—	8	—	97	30	127	135
Scabies ..	7	125	—	132	4	4,267	876	5,143	5,275
Acne ..	—	1	—	1	—	10	2	12	13
Prickly Heat ..	—	4	—	4	—	15	5	20	24
Ulcers ..	124	807	14	931	90	9,728	1,861	11,589	12,520
Keloids ..	—	—	—	—	—	1	—	1	1
Carried forward ..	581	13,998	398	14,579	601	78,791	16,587	95,383	99,957

TABLE XI.—*continued.*  
 RETURNS OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS)  
 FOR THE YEAR 1923—*continued.*

Diseases.	In-Patients.					Out-Patients.			Total cases In and Out-Patients.
	Remain- ing in Hospital at the end of 1922.	Yearly Total.		Total cases treated.	Remain- ing in Hospital at the end of 1923.	Males.	Females.	Total.	
Brought forward ..	581	13,998	398	14,579	601	78,791	16,587	95,383	99,957
<i>Local Diseases—</i> <i>continued.</i>									
Seborrhea .. ..	—	—	—	—	—	4	1	5	5
Impetigo .. ..	—	—	—	—	—	6	1	7	7
Blastomycosis ..	—	2	—	2	—	—	—	—	2
Other Diseases ..	4	40	1	44	1	216	33	249	293
(e) <i>Injuries (General)—</i>	5	52	5	57	3	2,688	163	2,851	2,908
Local .. ..	37	1,087	59	1,124	58	11,479	1,187	12,666	13,790
Tumour (unclassified)	6	61	8	67	6	47	32	79	146
Dermoid Cyst ..	—	1	—	1	—	—	—	—	1
Cystic Hygroma ..	—	—	—	—	—	1	—	1	1
Sebaceous Cyst ..	—	—	—	—	—	3	—	3	3
Cyst .. ..	1	7	—	8	—	7	7	14	22
Lipoma .. ..	—	6	—	6	1	5	1	6	12
Papilloma .. ..	—	2	—	2	1	1	—	1	3
Gumma .. ..	—	1	—	1	1	1	—	1	2
Multiple Osteomata ..	—	1	—	1	—	—	—	—	1
Fibromata (Ex.) ..	—	6	—	6	—	1	—	1	7
Innocent Growth ..	—	1	—	1	—	—	—	—	1
Abdominal Tumour ..	—	1	—	1	—	—	—	—	1
Epulis .. ..	—	2	—	2	—	—	—	—	2
Carcinoma Stomach ..	—	2	1	2	—	—	—	—	2
Carcinoma Abdominal ..	—	1	1	1	—	—	—	—	1
Carcinoma of Liver ..	—	2	—	2	—	—	—	—	2
Epithelioma Arm ..	—	1	—	1	—	—	—	—	1
„ of Penis ..	—	1	—	1	—	—	—	—	1
(g) <i>Malformations—</i>									
Phimosis .. ..	—	16	—	16	1	15	—	15	31
Supernumerary Toe ..	—	1	—	1	—	—	—	—	1
Congen Defect Urethra ..	—	1	1	1	—	—	—	—	1
Atresia Vaginæ ..	—	1	—	1	—	—	—	—	1
Cleft Plate .. ..	—	—	—	—	—	1	—	1	1
(h) <i>Poisons—</i>									
Belladonna .. ..	—	1	—	1	—	1	—	1	2
Arsenic .. ..	—	1	—	1	—	—	—	—	1
Food Poisoning ..	—	2	—	2	—	2	—	2	4
Serum Sickness ..	—	1	—	1	—	—	—	—	1
Bee Sting .. ..	—	—	—	—	—	2	—	2	2
Insect Bite .. ..	—	—	—	—	—	3	—	3	3
Snake Bite .. ..	1	25	—	26	1	9	1	10	36
Centipede Bite ..	—	1	—	1	—	1	—	1	2
Scorpion Sting ..	—	4	—	4	—	18	3	21	25
Unspecified .. ..	—	4	—	4	—	13	—	13	17
(i) <i>Parasites—Animal—</i>									
Unclassified .. ..	—	3	—	3	—	1	1	2	5
(1) Protozoa .. ..	—	—	—	—	—	—	—	—	—
(2) Trematoda (Flukes)	—	—	—	—	—	—	—	—	—
(a) Schist. hæmatobium ..	1	25	—	26	2	30	1	31	57
(b) Schist. mansoni ..	—	1	—	1	—	1	—	1	2
(c) Unclassified .. ..	—	—	—	—	—	104	8	112	112
(3) Cestoda—									
Tænia Solium .. ..	—	40	1	40	—	160	19	179	219
„ Saginata .. ..	—	12	—	12	1	252	59	311	323
„ Unclassified .. ..	—	—	—	—	—	357	114	471	471
(4) Nematoda—									
Ascaris .. ..	—	13	1	13	—	1,001	811	1,812	1,825
Carried forward ..	636	15,428	476	1,6064	677	95,221	19,029	114,250	130,314

TABLE XI.—*continued.*

RETURNS OF DISEASES AND DEATHS (IN-PATIENTS) AND OF DISEASES (OUT-PATIENTS)  
FOR THE YEAR 1923—*continued.*

Diseases.	In-Patients.					Out-Patients.			Total cases In and Out-Patients.
	Remain- ing in Hospital at the end of 1922.	Yearly Total.		Total cases treated.	Remain- ing in Hospital at the end of 1923.	Males.	Females.	Total.	
		Admis- sions.	Deaths.						
Brought forward ..	636	15,428	476	16,064	677	95,221	19,029	114,250	130,314
<i>Local Diseases—</i> continued.									
Trichocephalus Dispar	—	—	—	—	—	3	—	3	3
Dracunculus ..	—	—	—	—	—	—	—	—	—
Filaria—									
(a) m.f. Bancrofti	—	37	1	37	1	—	—	—	37
(i) Elephantiasis of Leg .. ..	—	11	—	11	2	3	1	4	15
(ii) Elephantiasis of Scrotum ..	20	101	3	121	13	4	—	4	125
(iii) Elephantiasis of Clitoris ..	—	1	—	1	—	—	—	—	1
(iv) Elephantiasis Unclassified ..	—	5	—	5	—	91	29	120	125
(b) f. loa .. ..	—	—	—	—	—	—	—	—	—
Strongylus .. ..	—	—	—	—	—	—	—	—	—
Ankylostomiasis ..	13	257	68	270	26	1,517	623	2,140	2,410
Oxyuris .. ..	—	1	—	1	—	12	3	15	16
(5) Insecta—									
Myiasis .. ..	—	—	—	—	—	14	5	19	19
Chiggers (D. penetrans)	—	14	—	14	—	394	46	440	454
Under Observation	—	9	—	9	—	4	3	7	16
TOTAL .. ..	669	15,864	548	16,533	719	97,263	19,739	117,002	133,535

TABLE XII.  
SURGICAL OPERATIONS, 1923.

Nature of Operation.	Result.					Remarks.
	Total.	Successful.	Improved.	Unsuccessful.	Died.	Remaining.
Tumours and Cysts, excision of .. .. .	46	42	1	—	2	1
Abscess, incision .. .. .	88	83	3	—	2	—
Removal Foreign bodies .. .. .	7	7	—	—	—	—
Ligature of Artery .. .. .	1	1	—	—	—	—
Traumatic Aneurysm of Radial Artery, excision of .. .. .	1	1	—	—	—	—
Varicose Veins, excision of .. .. .	3	3	—	—	—	—
Enlarged Lymphatic Glands, excision of ..	5	4	—	—	—	1
Tubercular Glands in neck .. .. .	2	2	—	—	—	—
Plastic Operations .. .. .	5	3	1	—	1	—
Skin grafting .. .. .	18	17	1	—	—	—
Sinuses and Chronic Ulcers, curetting ..	39	33	3	—	1	2
Wounds: Exploration or excision of, and suture .. .. .	24	22	—	—	2	—
Sequestrectomy and Curetting Necrosed Bones .. .. .	29	28	—	—	1	—
Fractures and Dislocations, reduction and setting of .. .. .	21	17	2	—	2	—
Excision of Astragalus .. .. .	1	—	—	—	1	—
Arthrotomy and drainage .. .. .	2	1	1	—	—	—
Severed Tendons, suture of .. .. .	2	2	—	—	—	—
Tendon Stretching .. .. .	1	1	—	—	—	—
Carried forward .. .. .	295	267	12	—	12	4

Deaths: (i) malignant tumour of ovary; (ii) uterine fibroids. Including 4 epulis, 2 dermoids. Including 1 mastoid, 5 perineal (1 died septicæmia), 1 abdominal (? appendix, Ascaris lumbricoides removed). Two from foot, 1 from leg, 1 from hand, 1 from finger, 1 from cornea. Anterior tibial, see below, "Suture of Tendons." Died 3 weeks later of arrow poison.

One for congenital defect of urethra, died under anæsthetic (see special report, p. 177); one for facial wound (see special report, p. 181); three for entropion and ectropion.

Death under chloroform.

One spear wound lung (died); 5 gunshot; 1 maul by leopard; 1 of abdomen with evisceration (died same day); 1 cut throat; one of thorax by spear, pleural cavity closed; 1 spear wound shoulder.

Deaths: (i) Compound fracture both femora; (ii) dislocation clavicle and wounds. Including 3 dislocations hip, 3 shoulder joint, 1 compound dislocation wrist, 1 ditto elbow, 1 ditto ankle, 2 fractured femora.

For compound fracture dislocation: died gas gangrene. For (i) suppurative arthritis of shoulder, (ii) purulent arthritis. One with ligature anterior tibial artery also.

TABLE XII.—*continued.*  
SURGICAL OPERATIONS, 1923—*continued.*

Nature of Operation.	Result.					Remarks.
	Total.	Successful.	Improved.	Unsuccessful.	Died.	Remaining.
Brought forward .. .. .	295	267	12	—	12	4
Amputations :—						
Fingers and toes .. .. .	23	23	—	—	—	—
Through tarsus .. .. .	1	1	—	—	—	—
" leg .. .. .	6	4	—	—	2	—
" knee joint .. .. .	1	1	—	—	—	—
" femur .. .. .	2	1	—	—	1	—
" forearm .. .. .	6	4	—	—	1	1
" humerus .. .. .	4	2	—	—	1	1
Trephining .. .. .	1	1	—	—	—	—
Cataract, extraction .. .. .	11	11	—	—	—	—
" scarification .. .. .	1	—	1	—	—	—
Enucleation of Eyeball .. .. .	2	2	—	—	—	—
Paracentesis of Pericardium, for effusion..	1	1	—	—	—	—
Paracentesis Thoracis .. .. .	1	1	—	—	—	—
For Empyæma, pleural cavity .. .. .	2	2	—	—	—	—
Hernia, radical cure .. .. .	99	94	—	1	3	1
Exploratory Laparotomy .. .. .	6	2	—	3	1	—
Colotomy : L. iliac .. .. .	1	—	—	—	1	—
For Intestinal Obstruction .. .. .	1	—	—	—	1	—
For Hemorrhoids .. .. .	5	5	—	—	—	—
For Fistula in Ano .. .. .	4	4	—	—	—	—
For Hepatic Abscess; laparotomy and drainage .. .. .	1	1	—	—	—	—
Carried forward .. .. .	474	427	13	4	23	7

A second operation was necessary : recovered (*see* report p. 182).

TABLE XII.—*continued.*  
SURGICAL OPERATIONS, 1923—*continued.*

Nature of Operation.	Result.				Died.	Remaining.	Remarks.
	Total.	Successful.	Improved.	Unsuccessful.			
Brought forward	474	427	13	4	23	7	
Paracentesis of Urinary Bladder	2	2	—	—	—	—	One (septic), drained.
Urethral Stricture, dilatation of, with sounds	39	1	37	1	—	—	One with fistulæ.
Urethral Fistulæ, curettage of	2	—	1	1	—	—	
External Urethrotomy	3	—	3	—	—	—	
For Extravasation of Urine	6	4	—	—	2	—	One died septic cystitis on day following operation; 1 died pneumonia 14 days after operation.
Circumcision	61	61	—	—	—	—	
For Elephantiasis of Scrotum: Removal of tumour	78	73	—	—	2	3	Deaths from (i) tetanus, (ii) shock.
Hæmatocele, radical cure of	11	11	—	—	—	—	
Hydrocele, radical cure of	98	98	—	—	—	—	
Removal of Testicle	3	2	—	—	1	—	For gangrene.
For Pelvic Abscess	1	1	—	—	—	—	Incision through posterior fornix of vagina.
Hysteropexy	1	1	—	—	—	—	
Curetting of Uterus	6	6	—	—	—	—	Three for incomplete abortion, 1 for sterility, 1 for endocervicitis.
Perineorrhaphy	7	6	1	—	—	—	
For Elephantiasis of Labium, excision of tissue	2	2	—	—	—	—	
For Elephantiasis of Clitoris	1	1	—	—	—	—	Death from embolism.
Version	1	—	—	—	1	—	For delayed labour.
Application of forceps to foetal head	7	6	—	—	1	—	For antepartum hæmorrhage (due to marginal placenta prævia)
Induction of Abortion	1	1	—	—	—	—	hydramnios: twins, born dead.
							For hyperemesis.
Induction of Premature Labour	2	2	—	—	—	—	
Craniotomy	5	3	—	—	2	—	Recovery retarded by attack of tetanus
Cæsarian Section	1	1	—	—	—	—	For osteomalacia, died of shock.
Porro's Operation	1	—	—	—	1	—	
Removal Retained Placenta	2	2	—	—	—	—	
Minor Operations, various	35	28	1	3	2	1	Died (i) of septic meningitis, 11 days after arrest hæmorrhage from superior longitudinal sinus due to wound; (ii) of C.S.M. after lumbar puncture for diagnosis. Unsuccessful: 2 retroverted uterus, 1 compound ganglion? tubercular.
TOTAL	850	739	56	9	35	11	

## APPENDIX I.

ANNUAL REPORT OF THE SUPERINTENDENT,  
LUTINDI LUNATIC ASYLUM.

## STATISTICS.

		Males.	Females.	Total.
In residence on the 1st January, 1923	..	55	30	85
Admitted during the year 1923	.. ..	18	6	24
Discharged	.. ..	19	4	23
Died	.. ..	4	1	5
Remaining on 31st December, 1923	.. ..	50	31	81
Number under treatment during 1923..	.. ..	73	36	109
Average daily number resident..	.. ..	57	31	88

		Yrs.	Mths.	Yrs.	Mths.	Yrs.	Mths.
Average length of stay of those discharged		1	6	1	8	1	7
.. .. .. who died		—	10	2	4	1	1
.. .. .. remaining		4	8	8	1	6	—

## ADMISSIONS.

The 24 patients admitted were classified as follows:—

10 suffered from Mania in various forms.

5 .. .. Delusional insanity.

4 .. .. Imbecility and confusion.

2 .. .. Depression.

1 .. .. Insanity associated with Epilepsy.

1 .. .. Hemiplegia with mental enfeeblement.

1 .. .. Old age with mental enfeeblement.

One case of recurrent mania was re-admitted after an absence of five months.

## DISCHARGES.

The total number discharged during the year was 23, which is 11 more than last year.

One male and one female were discharged improved, the remainder were regarded as recoveries. The majority of those discharged were suffering from mania when admitted. Cases of Delusional and Depressive Insanity tend to become chronic, this is particularly noticeable among the female inmates, many of whom have been here a number of years and are not improved.

## DEATHS.

There were five deaths during the year—seven less than last year. The principal cause of death, so far as could be ascertained, was as follows:—

1 Female. Exhaustion following prolonged excitement and restlessness.

1 Male. Shock following attempted suicide by hanging.

1 .. Extreme old age.

1 .. Cerebral hæmorrhage (admitted suffering from hemiplegia).

1 .. Epilepsy.

## HEALTH.

The general health has been very good. There has been no Dysentery throughout the year.

Three patients were attacked with Diarrhœa.

Sixteen males were attacked with Influenza.

One patient underwent operation for hydrocele, in Tanga Hospital.

Seven patients suffered minor injuries at the hands of fellow-patients.

Four males sustained severe injuries during Epileptic seizures.

Eight patients were mechanically restrained upon fourteen occasions.

Seclusion was resorted to upon nineteen occasions.

There were no escapes.

## COST OF MAINTENANCE.

Amount allocated by Departmental Warrant No. 21/1923/24 = Shs. 15,000.00

Amount expended for nine months ending 31st December = „ 7,824.33

Based upon the average number resident, the cost of maintenance has been approximately 32 cents. per head, per day, during the calendar year.

Average monthly expenditure on each patient maintained during 1923 :—

	Shillings.
In food .. .. .	4.54
In wages of employees .. .. .	4.36
In Clothing .. .. .	.59
In sundry replacements, tobacco, &c. ..	.14
In lighting and cleaning materials .. ..	.13

Approximate monthly cost per head .. Shs. 9.76

## WORK OF PATIENTS.

More ground was taken under cultivation this year and an average of 25 male inmates found employment daily.

The farm produce was valued at Shs. 578/10 and is taken on charge for Rations. A return of Farm Produce is attached.

Other males were employed tailoring, painting, basket-making, assisting tradesmen, and in scavenging.

Most of the female inmates were occupied in preparing food and in plaiting native mats.

Twenty-five articles of furniture were made for Tanga and Moshi Hospitals, for which no charge was made.

## IMPROVEMENTS AND REPAIRS.

The earthen floors in male and female wards and in dining hall have been replaced by concrete.

The walls of two rooms have been re-inforced with cement.

A concrete incinerator has been built, as suggested by the Principal Medical Officer during his visit.

Surface drains and gutters have been completed.

The buildings have been renovated and all woodwork treated with Solignum.

Several minor improvements in regard to fences, doors and gates have been carried out.

Four dustbins have been improvised, and all clothing, blankets and baskets stencilled with the name of the asylum.

## SANITATION.

The improvements which have been made in the drainage of rooms and in the disposal of refuse have helped the Asylum to enjoy a remarkably healthy year.

The supplies of cement have been of the greatest benefit. Concrete floors admit of rooms being washed out, which was not possible before, a copper has been built to boil the weekly wash, and the resulting scarcity of jiggers and other vermin has added to the general comfort.

The practise of chewing sugar-cane and ejecting the residue about the floor and grounds was most difficult to check, but patients and employees are beginning to appreciate the value of dustbins and incinerator. The patient in charge of the latter has become expert at his job. It is noticeable that the number of flies and smells have lessened considerably, particularly in the dining hall, where the floor has been recently treated with cement.

There are still two weak spots in the Sanitary arrangements which require a further supply of cement and a few lengths of drainpipe to complete the improvements.

## VISITORS.

The Administrative Officer in Charge, Usambara District, inspected the Asylum on 5th September and left a record of his visit.

## GENERAL MATTERS.

A daily service is held in the Mission Church at which any patient who desires is allowed to be present.

One juvenile patient attends the Mission School daily. The one patient able to read appears to derive enjoyment from the monthly copy of "Mambo Leo" with which he is supplied.

Four patients assisted to make an inlaid table for the British Empire Exhibition.

The means for amusing the patients are limited. A few men play football and several females interest themselves making mats and baskets.

Sports were held at Easter for prizes given by Matron. Some 200, including employees and their families, took part.

The attendants have been on the best possible terms with the patients; most of the female attendants are accompanied by a child while on duty and it frequently happens that an acute patient is employing herself as nurse.

The Matron has conducted the Dispensary for out-patients from neighbouring villages to the number of 793.

Ample supplies of medical stores have been received from headquarters during the year.

Return of crops grown in Asylum grounds during 1923:—

Produce.						Value.
						Shillings.
Sweet Potatoes	11,202	lbs.	at cents	2	per lb.	.. .. 224.04
Tobacco	162	"	"	50	"	.. .. 81.00
Maize	2,312	"	"	4	"	.. .. 92.48
Beans	1,446	"	"	10	"	.. .. 144.60
Tomatoes	659	"	"	4	"	.. .. 26.36
Fruit and Sugar Cane	..	..	..	..	..	.. .. 9.62
Total Value						.. Shs. <u>578.10</u>

## APPENDIX II.

## GOVERNMENT DENTAL SURGEON'S REPORT, 1923.

Below is a summary of the dental treatment given to the European Officials and their families during the period January-June, 1923; the remainder of the year the writer spent on leave.

The treatment of Caries and Pyorrhœa continues to occupy the greater part of the time of the writer, who performs also the appliance work.

Tabora and Dodoma were visited in April.

Officials of the Zanzibar Protectorate have been treated as in the past.

Members of the Asiatic staff and their families have been treated when required, as also have some of the native school children and the local natives.

Early in the year the Dental Surgery was enlarged, greatly to the advantage of all concerned.

Attention is drawn to the necessity of some form of dental X-ray apparatus. Much depends on the early diagnosis of hidden dental sepsis, and it is suggested that some of those patients who suffer from malaise, ill health and exhaustion on slight exertion, at present described as a result of residence in the Tropics, may owe their cause to sepsis of hidden dental origin. Cases of Subacute Toxæmia, of, in some cases, years standing, have been shewn to be due to hidden dental sepsis and have been cured on removal of the cause, *i.e.*, dental sepsis, the presence of which could only have been discovered by means of a radiogram.

The list below refers to the European Officials and their families of this Territory, treated during the period January-June, 1923:—

Attendances	...	...	...	...	...	...	...	564
Fillings, crowns, etc.	...	...	...	...	...	...	...	287
Root fillings	...	...	...	...	...	...	...	41
Extractions	...	...	...	...	...	...	...	75
Dentures repaired	...	...	...	...	...	...	...	28
Dentures made	...	...	...	...	...	...	...	20
Scaling, gum treatment, etc.	...	...	...	...	...	...	...	185

In addition to the Asiatics and Africans treated, twelve patients attended from Zanzibar, for whom the following work was done :—

Attendances	...	...	...	...	...	...	...	17
Fillings, crowns, etc.	...	...	...	...	...	...	...	15
Root fillings	...	...	...	...	...	...	...	3
Extractions	...	...	...	...	...	...	...	3
Scaling	...	...	...	...	...	...	...	5

H. M. FISHER,  
*Government Dental Surgeon.*

### APPENDIX III.

#### ANNUAL REPORT BY S. A. S. KELKAR, IN MEDICAL CHARGE, ANGLO-BELGIAN BOUNDARY COMMISSION, 1923.

##### INTRODUCTORY REMARKS.

This period may be said to have been occupied by the Commission in working from the northern end of the boundary (Shonga) to the southern end (Lake Tanganyika) and may be divided into two parts, viz. :—(a) Actual stay in certain camps, and (b) Period spent in travelling from point to point. The Commission itself was divided into two sections, viz. :—(1) Section doing the actual field work—two Senior Surveyors and two Topographers, and (2) Section in Headquarters at the Base Camps.

The following Table shows the movements and approximate stay at each Base :—

Ruanda Area	{	Shonga	..	..	January, 1923.
		Nshiri	..	..	February 10th to June 20th.
Kibondo Area	{	Luchachi's	..	..	July and August.
		Kibondo	..	..	September—August.
Kasulu (Ujiji Area)	{	Nianga	..	..	November to December 17th.
		Kumunanira on Lake Tanganyika	..	..	December, 1923.

##### SECTION I. ADMINISTRATIVE.

The Medical arrangements were in charge of a S.A.S. (the writer), assisted by one dresser. It was decided that the Medical Department should stay at Headquarters and should visit the Senior Surveyors and the Topographers as necessity arose and opportunity occurred. Each of the Surveyors and the Topographers, who were almost always on their own with a certain number of porters and followers, was supplied with first aid drugs, dressings and equipment, with instructions as to their use, and this supply was replenished from time to time. Serious cases were sent in by them to the Base Camp where, through the kindness of the British Commissioner, a small hospital "banda," 12 in. by 12 in., was always prepared for their reception and treatment.

At Headquarters usually were present the British Commissioner with his porters, the O.C. Escort with the Askari, the S.A.S. with the hospital, and a certain number of porters : from time to time each of them had to travel to visit the actual field force working.

It may also be remarked here that the Belgian Section of this Commission had no Medical Attendant, and, whenever requested and necessary, medical aid was promptly rendered in emergency and difficult cases, both to the Europeans and Natives.

The local natives of the parts traversed by this Commission also were treated.

The European Officials met within the districts traversed, needing medical help, were also treated.

##### SECTION II. HEALTH AND STATISTICS.

The following was the number of persons for whose health I was responsible :—

European Officials	...	...	...	7
Asiatic Official	...	...	...	1
Native Officials	...	...	...	240.3 on the average.

During 12 months there were 2,884 Native Officials. Native Officials consisted of K.A.R. Askari, permanent porters and followers of the Commission.

## GENERAL REMARKS.

Total treated, including local natives	...	...	...	2,043
Deaths	...	...	...	4

## INFECTIVE DISEASES.

*Dengue Fever.*—A solitary case occurred amongst the permanent porters near Shonga.

*Dysentery.*—No cases occurred amongst the Commission personnel. One case of Amœbic Dysentery amongst the followers of the Belgian section was treated at "Sinda," the Belgian Base Camp in Ruanda area.

2. Cases were treated at Nshiri Base Camp amongst the local natives.

*Enteric Fever.*—No cases. It is interesting to note here that the parts of Ruanda through which the Commission passed were, before and during the late war, a confirmed Enteric country.

*Syphilis and Gonorrhœa.*—See section on Venereal Diseases, p. 153.

*Influenza.*—No cases. At Kibondo all the K.A.R. Askari and some of the permanent porters were inoculated with protective vaccine.

*Leprosy.*—Two cases diagnosed amongst the permanent porters and repatriated to their respective districts

*Malaria.*—European Official, 1 case, sub-tertian; Native Officials, 64 cases, no deaths; clinically diagnosed 36, microscopically B tertian 9, sub-tertian 19; local natives, 14 cases; 1 case amongst the followers of the Belgian section

*Local Conditions.*—I had the opportunity of inspecting a certain number of children and adults (Bahutu and Batusi tribes) for splenic enlargement at Nshiri (Kanazi village), with the results charted below :—

Comparison in the Splenic Enlargement at different ages in the two tribes Batuis and Bahutu at Kanazi Village (Ruanda), shown as percentages among 363 individuals examined :—

Ages	..	1	2	3	4	5	6	11	16	21	26	31	36
							to	to	to	to	to	to	to
							10	15	20	25	30	35	40
Batusi	.. %	10	15	—	—	9	18	14	51	52	65	—	79
Bahutu	.. %	70	76	71	—	72	51	46	31	9	—	—	—

*Meningitis, Cerebro-spinal.*—No cases.

On enquiring into the past history of epidemic diseases of the Nchiri area, Mtwale Lukara said that, after the Influenza epidemic of 1918, his district was visited by an epidemic disease in 1919-1920, which reduced his 15,000 tax payers by 500 and showed an unusually heavy incidence amongst females and children. From the following description of the disease he gave me, it appears to have been C.S.M.

*Description of the Disease.*—The person attacked complained of severe pain in the lumbar region and was unable to move his lower limbs—the pain ascended from the lumbar to the cervical region, and the neck became fixed. The body became very hot, the patient delirious and then comatose; he could not even feel the touch of red hot iron. All these signs and symptoms manifested themselves in eight hours and, if the case was to be fatal, it proved so in twenty-four hours. They branded the nape of the neck and all over the spinal column with red hot iron and sometimes the patient did recover; but, if so, he always exhibited one of the following marks of the disease, viz. :—both legs or one leg paralysed; one or both arms paralysed; eyesight lost; speech lost; neck turned and fixed on the right or the left side.

To avoid this disease he said they used to inhale the vapour of Eucalyptus tree leaves: possibly the infection was carried by the respiratory passages.

The epidemic, he said, started in the Bugufi area, near the Ruvuvu River, and spread over towards his district owing to the careless disposal of the dead and the constant road traffic.

The epidemic having subsided in 1920, sporadic cases now occur every year during June and July, causing one or two deaths: at the time of giving me this information in June, 1923, he reported two deaths in different hills.

*Sandfly Fever*.—See Appendix, p. 158.

*Pneumonia*.—Two cases. No deaths.

*Relapsing Fever* (Tick Fever).—Ten cases. No deaths.

Out of the ten cases, four occurred amongst the Nyasaland askari, four amongst the coast boys, who seem to be very susceptible, and one amongst the local natives.

Complications: in one case, well-marked sub-conjunctival hæmorrhage and, in another, Herpes labialis.

The presence of *O. moubata* was noticed in several places on the route (*vide* Section IV., Entomology).

*Small-pox*.—No cases. All natives were certified as vaccinated before being employed.

*Tetanus*.—Nil. In spite of the injuries and scratches incurred in the bush and covered over with dirty soil, no cases occurred.

*Pulmonary Tuberculosis*.—One case, a permanent porter, was diagnosed at Nshiri and was recommended for repatriation and notification to the M.O.H. I/C of the district to which he belonged. Seven cases, Batusi by tribe, were treated in the Ruanda area. Pulmonary Tuberculosis is one of the very common complaints amongst the Batusi, who live mostly on fresh or curdled milk and banana beer and lead a sedentary life. Tuberculosis amongst their cattle is not uncommon.

*Yaws*.—Six cases: contracted in the Ruanda area, where it is rife in certain parts.

Sixty-two cases were treated amongst the local natives. In my December report last year I reported on twelve cases of "Sloughing Ulcerous Rhino-pharyngitis," which were under treatment and which condition was very common amongst the natives of the Shonga area. The Director of Laboratory suggested, after an examination of a series of slides of the nasal discharge from these cases, that this might be "Vincent's Infection" super-imposed on Yaws. If this be so, it may be said that there are two distinct types of Yaws seen in the Ruanda area, viz.:—(1) Sloughing Ulcerous Rhino-pharyngitis in the Shonga area, and (2) Condylomatous type in the Nshiri area.

I examined a certain number of children at Nshiri and the following Table shows the results:—

				Children Examined.		Number showing active lesion of Yaws.	
				Male.	Female.	Male.	Female.
Batusi	..	..	..	53	16	15	3
Bahutu	..	..	..	88	30	23	4

The natives call this condition "Manyoro ndogo" and believe that, when they once suffer from Yaws, they can never suffer from "Syphilis," which they call "Manyoro kubwa."

Treatment: Antimony tartrate  $\frac{1}{2}$  gr. to 5 c.c. of saline was found of value: six to eight such injections were required at intervals of six to eight days. In twenty-two cases, 914 was given intravenously to cure complications.

*Helminthiasis*.—Cases treated amongst Native Officials ... .. 14  
 ,, ,, ,, local natives ... .. 27

Ankylostomiasis was found to be a common condition amongst the Bahutu, who have practically no idea of clean and sanitary living. Seventy-six specimens of stools (Native Officials) were examined and nearly 33 per cent. were found positive:—

Stools examined	Ova Asc :-Lumb :	Ova Ankylostoma.
76	3	22

Although the ova of *Ankylostoma* were noticed, the subjects, excepting one who developed Ankylostomiasis after three months, did not show signs of the disease during three to six months' observation.

*Trypanosomiasis*.—No cases.

One case was suspected, but the Director of Laboratory reported a negative result on the examination of a blood film. For the distribution of Tsetse Belts observed, *see* "Entomology."

*Venereal Diseases*.—Native Officials, Gonorrhœa 11, Syphilis 19; local natives, Gonorrhœa 11, Syphilis 35.

*Syphilis*.—The scourge of Syphilis is rampant throughout Ruanda. It is not only degenerating the general physique of the local natives, but a heavy infantile mortality is caused by it. The following results, obtained on an examination of a certain number of children at Nshiri, show the prevalence of hereditary Syphilis:

				Children Examined.		Showed signs of Hereditary Syphilis.	
				Male.	Female.	Male.	Female.
Batusi	..	..	..	53	16	16	8
Bahutu	..	..	..	88	30	29	9

*Infantile Mortality*.—At Nshiri, Mtwale Lukara, one of the intelligent chiefs of Lukira district, gave the following information regarding Kanasi village: there are 410 males and 469 females, with 780 children in this village. In 1922 62 children died under 4 years of age and, out of the 38 births, 11 were still-born, the chief cause being Syphilis.

The community has now realized the menace of this scourge and they readily attempt to get the proper treatment. The majority of them are anxious to get intravenous Salvarsan, which they call "Shindano Kubwa." I have had cases of pregnant women come in to ask for 914 injections in order to secure the birth of a live child.

#### SECTION II*b*. HEALTH, EUROPEAN OFFICIALS.

Generally the European Officials kept in good health in spite of the hardships encountered: this fact reflects great credit on themselves for their proper adoption of prophylactic measures and for continuously keeping what is called "Health conscience":—

Total number of Officials	..	..	..	..	..	..	7
Total number on Sick List	..	..	..	..	..	..	7
Total number of days on Sick List	..	..	..	..	..	..	32
Average daily number on Sick List	..	..	..	..	..	..	0.08
Per cent. of Sick to Total number	..	..	..	..	..	..	1.2
Average number of Sick days for each Patient	..	..	..	..	..	..	4.57
Average Sick Time to each Official	..	..	..	..	..	..	4.57
Total number invalided..	..	..	..	..	..	..	1
Percentage of Invalidings to Total Officials..	..	..	..	..	..	..	14.2
Deaths	..	..	..	..	..	..	Nil.

The diseases for which these Officers were on the Sick List, were:—

Malaria, subtertian	..	..	1	Gastritis, acute	..	..	1
Neuritis	..	..	1	Hæmorrhoids	..	..	1
Angina pectoris	..	..	1	Food poisoning	..	..	1
Inflammation lymphatic gland	..	..	..	..	..	..	1

And the following cases were treated as Out-Patients:—

Renal colic	..	..	1	Pyorrhœa	..	..	1
Coryza	..	..	1	Urticaria	..	..	1

One European Official contracted Tick Fever whilst on his way down to Kigoma from Kibondo and was recommended for leave by M.O. Kigoma who treated him.

*Health of the King's African Rifles escort*:—

King's African Rifles, strength	..	..	..	..	..	..	40
Total number treated as In-Patients	..	..	..	..	..	..	26
Total number of days off duty	..	..	..	..	..	..	318
Average number of off duty days for each In-Patient	..	..	..	..	..	..	12.23
Average sick off Duty Time for each Askari	..	..	..	..	..	..	7.95
Total Out-Patients	..	..	..	..	..	..	467
Average daily number on Sick Parade (including In-Patients)	..	..	..	..	..	..	1.35
Death	..	..	..	..	..	..	Nil.

The following important diseases were treated :—

Tick Fever .. .. .	4	Gonorrhœa .. .. .	2
Malaria .. .. .	4	Syphilis .. .. .	2
Three-Day Fever .. .. .	2	Ulcers .. .. .	2
Acute Bronchitis .. .. .	1	Rheumatism .. .. .	1
Pleurisy .. .. .	1	Cellulitis .. .. .	2
Tape Worms.. .. .	2	Diarrhœa .. .. .	3

*Health of the Permanent Porters and Followers :—*

Average monthly strength, Porters and Followers .. .. .	200·3
Total on Sick List .. .. .	1,110
Total treated as In-Patients .. .. .	358
Total Out-Patients .. .. .	752
Average days off duty for each In-Patient .. .. .	7·9
Average daily number on Sick List .. .. .	7·7
Invalided or sent for further treatment .. .. .	15
Deaths .. .. .	4

(Injuries and Ulcers predominated).

For the description and the incidence of the Ulcers, *see* Appendix, page 157.

Whilst at Luchachi's, some of the porters and the followers suffered from Three-Day Fever in July and August; a full account of this condition is appended (page 158).

The four deaths recorded were due to :—

Heart failure (?Ankylostomiasis) .. .. .	1
--	---

Reported by Topographers from outside :—

Pneumonia .. .. .	2
Struck by Lightning .. .. .	1

Emergency Operations performed :—

Radical cure, for Strangulated Hernia .. .. .	1
Radical cure, for Inguinal Hernia .. .. .	1
Circumcision, for Phimosis .. .. .	1

Minor Operations performed :—

Free Incisions, for Cellulitis .. .. .	8
Opening and drainage, for Abscesses .. .. .	23
Opening and scraping, for Bubo groin .. .. .	3
Curetting, for Ulcers .. .. .	49
Extraction, for Carious teeth .. .. .	12

### SECTION III. GENERAL PHYSIQUE AND SOME CUSTOMS AND HABITS OF THE NATIVES OF THE DISTRICTS TRAVERSED.

#### RUANDA.

The local natives divide themselves into distinct tribes, viz. :—(1) The Batusi, the landlord class; (2) Bahutu, the labour class; (3) The Batwa, the Bushman tribe, seen here and there.

(1) *The Batusi*.—Tall (average height over 6 ft.), delicate, slenderly built, pale-coloured natives with straight features and large eyes, resembling in most respects "Somalis"; very poor where weight lifting is concerned, generally occupy the highland plateaus and own large herds of cattle and plantations of bananas. Their habitations are clean and sanitary, they live mostly on raw milk, curdled milk and fermented raw banana beer which they suck through a hollow, light wooden tube, without which they would not drink anything. (Even medicines are drunk through this tube; I had to keep two such tubes). They besmear the body with butter from head to toe to avoid chills, colds, sunburn and jigger fleas; have the body massaged by Bahutu serfs every evening; are skilled in spear-throwing and in the use of bow and arrows to protect the gardens from wild pigs; not regular flesh eaters, but, occasionally, when an ox or a cow is very sick and nearly dying, they slaughter and eat it. Staple foodstuffs, which are generally eaten well-cooked with the whole family, are sweet potatoes, beans, banana flour or mtama flour. Clothe themselves with a piece of cloth knotted over the left shoulder; dress the hair (on the average, longer curls than the other tribes) in horse shoe patterns, carry a long stout spear in the right hand, wear a string of beads round the neck and, to complete the array, carry a long delicate wooden-tube clay pipe in the left hand, filled with half green tobacco leaves and a live charcoal on top. They are experts in high jump, running and fast walking, but lose their balance where sudden turning is required.

Their women resemble them in every respect, but are well clothed with long bark cloth or skins (softened with constant coatings of butter) and mostly spend their time inside their house compounds, which custom resembles the most disastrous "Parda System" in India.

Originally this tribe had a very high moral standard of living, but recently, marks of degeneration can be observed through their inter-marriage with the Bahutu and other tribes.

The most common diseases met with are Syphilis, Yaws, Pulmonary Tuberculosis, Ankylostomiasis: in women, Anæmia and Chlorosis, and in children, Hereditary Syphilis and Bronchial diseases. Their usual adjunct to any native medication is either cow dung or cows urine.

(2) *The Bahutu*.—The working class of natives—the original tribe of Ruanda—are medium statured and muscularly built; occupy mostly the valleys or the low lands near their gardens of sweet potatoes, beans or mtama (millet); labour and look after the cattle of their Batusi masters, themselves owning some goats and sheep; assisted by their women, who carry their youngest baby on the back in a goat skin, and children are most dirty and unclean in their habits, wear cattle skins or goat skins which have been besmeared with rancid butter hundreds of times and always carry a strong smell about them and, consequently, swarms of flies; they usually use the bush nearabouts their habitations—which consist of small, circular dome-shaped grass huts—to answer calls of nature. The cattle, the cow dung and their habitations are generally in the same compound which swarms with flies. They seldom, if ever, bathe, and are, naturally, very exposed to insect bites. The staple foodstuffs are beans, sweet potatoes and mahogo or mtama flour. They are flesh eaters, but never eat fowls or eggs. The chief prevalent diseases are Ulcers of the extremities, Elephantiasis, Scabies, Ankylostomiasis, Yaws and Syphilis.

(3) *The Batwa*.—A Bushman tribe of Ruanda, not met with in large numbers, very lazy, do not hoe any shambas for their food, but live mostly on meat trapped or shot with arrows, or on stolen foodstuffs; clothe their private parts with banana or other leaves or skins of trapped animals.

(4) *The Bugufi and Usuvi*.—Similar in all respects to the Bahutu tribes of Ruanda.

*Cannabis Indica*. (*Bhang*).—Is seen in almost every house compound of the Bugufi natives. The dry leaves are used for smoking and the watery extract is mixed with Pombe (beer) to accelerate the exhilarating sensation. The eyes of the Bugufi natives mostly show a slight degree of "Exophthalmos."

(5) *The Bahas*.—This principal tribe, met with in the Kibondo area and the Kasulo area (Kigoma district), is very poor in physique and the majority of them have deformities of the extremities, viz.:—Talipes, Genu varum, Genu valgum, toes fallen off owing to Jigger fleas or Ainhum, deformities of the spine. Leprosy is very commonly seen. They indulge in mtama or banana beer mixed with honey, and are said to have excessive desire for sexual intercourse; have very little respect for life and, when drunk, either murder or seriously wound their neighbours or partners with spears or poisoned arrows or small spear heads worn in beautifully carved wooden scabbards, which they always carry about. They have a great liking for decking themselves with thick or thin brass or copper wire anklets, wristlets and necklaces from early childhood. They shave their heads (men, women and children) and besmear their heads with palm oil—a rancid, yellowish greasy substance, resembling "Paraffin Molle"—to avoid sunstroke and as a matter of decency.

The staple foodstuffs are raw bananas, beans, mahogo, mtama flour, sweet potatoes and, for fat, roasted white ants.

*Infantile Mortality*.—Apart from Syphilis and Yaws, there are two other causes which take a heavy toll of life amongst these tribes. Amongst the Batusi there occurs a disease resembling Infantile Biliary Cirrhosis, with enlargement of the liver and spleen, Anæmia, vomiting and Diarrhœa, and death within twelve days. Amongst other tribes, Penumonia, "Bronchial Catarrh," and enlarged spleen due to fevers. Amongst the Batusi, the expectant mother is not allowed to do any work and is kept on light diet: after delivery, she is kept on milk or banana beer for twelve days and, later, light diet for two months. Amongst the other tribes the expectant mother works in the field almost up till the time of delivery and, the day after delivery of the child, she carries that child on her back in a goat skin and consequently the child is exposed to chills, draughts and insect bites.

## SECTION IV. ENTOMOLOGY.

*Mosquitoes*.—Anopheline mosquitoes. (1) This variety of mosquito was noticed to be breeding at Shinga in a small collection of stagnant water in a slowly running stream in the valley at the foot hill on which the camp was situated during the end week in December, 1922, and also the first week in January, 1923.

(2) Anopheline mosquito larvæ were present in the small swampy stream (water supply) at the foot of the Gabiro camp and were noticed on 29th January, 1923.

(3) Anopheline mosquitoes were also found at Nchiri Base camp during the third week in March, 1923: probable source—being blown over to the camp from the roots of the banana trees, about 600 yards from the camp, where they were found to be breeding.

(4) Anopheline mosquitoes were found at Kibondo during the third week in October, 1923. These were breeding in a small pond in the vegetable garden of the A.O. at the foot of the hill.

(5) Anopheline mosquitoes were also found to be breeding in the collection of water formed at the roots of banana trees at Nianga in the last week in November, 1923.

(6) Anopheline mosquitoes were also found at Kasange Camp, on the Kagera River, on the 22nd of June.

*Stegomyia*, as well as *Culcines*, were in numbers everywhere during the rainy season.

*Tsetse Belts*.—(1) Game forest near the Mount Gabiro: observed on 29th January, 1923.

(2) Mahoma, 4 miles east of Kiburara on 6th February, 1923, at 8 a.m.; altitude 4,200 feet. Thick game forest, wooded with medium-sized trees and long grass intervening: the following game abounds:—tope, zebra, waterbuck, reedbuck and buffalo, in long grassy valleys. The place was at one time thickly populated as evidenced from the many deserted habitations and compounds of milk-hedge present.

(3) Lenbona Hill, bank of the Kagera River, on 12th April, 1923, at 7.30 a.m. The belt only covers altitude 4,400 feet to 4,600 feet. Hills are covered with thick forest trees of medium height and long grass. Swamp of papyrus and thorny ambach at the foot of the hill.

(4) At Kiziwizigwe on the 1st of September, 2nd camp from Luchachis, towards Kibondo.

(5) At Mpemoi, on the 31st of October, 1st camp from Kibondo, towards Malagrassi River.

(6) At Bushoza river, 1st of November, 2nd camp from Kibondo towards Malagrassi.

(7) At Malagrassi river, Karadonga's; Kibondo side of the Malagrassi river.

(8) Between Nyange and Muhuroro in a game forest, 2nd camp from Malagrassi, towards Nyanga, Kasulu area, 7th November, 1923.

*Ticks*.—A species of spotted tick was caught in a native hut at Nchiri, adjoining a cattle kraal at 3 p.m., on 5th May, 1923.

*Spirillum Ticks* (*O. moubata*).—The presence of these ticks was noticed at Camp Gisha, Luchachis (probably brought in from Tabora-Mwanza-Biharamulo route), and also all along the route from Kibondo, towards Malagrassi, in native huts in camps.

*Blood-sucking Larvæ*.—These larvæ were noticed in as large numbers under the grass beds of the natives and found in the daytime buried in the loose earth underneath, but biting like ticks during the night. They are very quick in their movements. In fact, the search was really made for *Spirillum* ticks when the boys complained that they were bitten by some insects during the night. These larvæ are transparent and the sucked blood can be seen for three days quite fresh.

Their presence, however, side by side with the *Spirillum* ticks, leads to some suspicion as to whether these larvæ could carry *spirillum* of relapsing fever.

*Blood-sucking Flies*.—Three different species of these flies (*Hæmatopota*) were caught in the Nchiri area (Kanazi), near papyrus swampy place at the Lake Mugesera, from where water for drinking purposes is fetched, on 3rd June, 1923, at 10.30 a.m. Another species was collected in a cleared space in the bush adjoining the papyrus and thorny ambach swamp near lake Sake, at the foot of a hill, one hour from Nchiri, on 15th of May, 1923. This is a watering place for cattle as well as natives.

Two specimens of large blood-sucking flies were also found at Nyanzuki, 1st and 2nd camps from Kibondo, towards Luchachis. These flies make a sudden humming noise, dash on the exposed parts of the body, inflict a horrible sting, and fly away. The presence of tsetse also in these camps was noticed as remarked above.

*Musca*.—A species of fly, smoky-coloured, looking very innocent, sitting on the inner sides of the roofs of the tents in which the blood-sucking larvæ were found at Luchachis (*Auchmeromyia luteola*, no doubt, J.B.D.). A species of fly was also caught at Gwisha village that seemed to live on other flies (*Asilids*. J.B.D.).

*Chigger Fleas*.—These abound, especially in the Kibondo area, in loose, red sandy soil. They become especially numerous in unoccupied native huts. During the rainy season they seem to disappear.

NOTE.—The Returns of the cases treated by S.A.S. Kelkar during the year are not reproduced here. The cases numbered 1,605 (of which 574 were Injuries and 275 Bronchitis) amongst "Native Officials" and 420 (of which 62 were Yaws, 35 Syphilis, and 98 Ulcers), amongst the Native General Population (J.B.D.).

#### APPENDIX.

*An Epidemic of Ulcers of the Extremities amongst the Native Staff of the Anglo-Belgian Boundary Commission*.—Whilst the Commission was in the Ruanda area, especially in the Kissake sub-district of Lukira, during February, March, April, May, and three weeks of June, 1923, the permanent porters and followers suffered from some specific Ulcers, which were not amenable to any usual treatment. This condition took on an epidemic character during the latter part of the stay in the area and caused great anxiety, owing to the rapid decrease in the number of fit porters. Various methods of treatment were tried, but, during our stay in that area, the net result was a considerable loss of drugs and dressings with apparently no good results or reduction in case incidence.

*Description and Course of the Ulcers*.—A small blister-like pimple, the size of a pea, very itchy, was the first sign every subject brought to notice. This broke, either by scratching or by itself, and exposed a sauce-shaped depression, with a well-defined and raised margin. The base was whitish and granular, and the surrounding tissue was not inflamed. These Ulcers, however, extended peripherally and the margins became more and more well-defined, and thickened and retained either an oval or a circular shape. The size varied from that of a fifty cent. piece to that of a rupee. In some Ulcers, a crusty or brownish-looking scab was formed, but, on pressing the scab, sero-purulent discharge was still exuded, denoting false healing. The real healing process began at the centre and extended towards the margins, and at the site of the healed Ulcer a large, thin coppery-coloured cicatrix was left.

The patient always shewed great depression of spirits and loss of energy; the Ulcers usually occurred on legs and feet.

*Incidence*.—March, 17 cases. April, 19 cases. May, 28 cases and 9 cases till the 20th June. On the average, these cases took twenty-nine days to heal, under a mixed treatment.

*Treatment Tried*.—In spite of aseptic dressings, combined with either "914" or Antimony Tartrate intravenously, or increasing doses of Pot. Iodide, the Ulcers took their own course.

Three cases with two intravenous "914" each: no results.

Six cases with intravenous Antimony Tartrate: two good results.

Increasing doses of Pot. Iodide up to 30 grains p.d.: one good result.

Tonics and dietetic treatment: no results.

All the above were tried with caustics, astringents, anti-septics, mild and strong ointments, etc.; compulsory baths every second day; compulsory washing of clothing and blankets and dipping them in Hycol solution every week, spraying and disinfecting quarters every week.

With all the above, the cases still occurred persistently, but no sooner had we left the Ruanda area in the end week of June than the Ulcers began to heal rapidly with simple dressings, in spite of the strain of walking, etc., and no new cases occurred.

These Ulcers, therefore, whatever their origin, may well be called "Ruanda sores."

The Director of the Bacteriological Laboratory, on examination of a certain number of slides, reported " Vincent's Infection."

Several species (three kinds) of blood-sucking flies were present in the area in which the porters were working and they were, of course, bitten by these.

These flies, together with some slides, were posted from Luchachi's for the opinion of the Director of Laboratory, but, unfortunately, they were lost in transit.

A photograph showing these Ulcers is attached.

### THREE DAYS FEVER (NON-MALARIAL).

When the Commission arrived at Luchachi's from Nchiri, 36 out of 148 Native Officials suffered from three days fever during the period 28th June to the 10th of July, 1923.

*Signs and Symptoms.*—The disease was ushered in by incessant temporal headache of a throbbing character, with pains in joints and limbs, and within eight to ten hours the temperature rose to  $101^{\circ}$ - $102^{\circ}$ , with pulse full and bounding. Feelings of Nausea, bowels constipated, tongue dry, coated and furred in the centre and red at the margins and the tip; the patient feeling very thirsty. No cold in the nose. No throat symptoms. Respiratory system normal, except for hurried breathing. Urine scanty and high-coloured, shewing a thick ring of albumen with nitric acid. Liver normal; spleen palpable. No rash on the skin. The patient became very restless, passed sleepless nights and did not like to be disturbed.

The condition lasted for seventy-two hours, when the temperature came down by crisis, usually to one degree below normal, with profuse frontal sweating. In three cases, nasal hæmorrhage. The period of convalescence was two days with a stimulant tonic.

Quinine, phenacetin, aspirin, etc., proved of very little value. Sodii salicylas gave a certain amount of relief.

*Blood smears.*—Negative for Malaria; negative for Spirillum.

Incidence :—	28th June	...	...	...	...	4 cases.
	29th June	...	...	...	...	6 „
	30th June	...	...	...	...	5 „
	1st July	...	...	...	...	6 „
	2nd July	...	...	...	...	4 „
	3rd July	...	...	...	...	5 „
	4th July	...	...	...	...	3 „
	5th July	...	...	...	...	3 „

On the 1st of July, isolation and segregation precautions were taken and by the 6th of July the disease was checked; on the 10th of July the convalescents were discharged cured.

### V. REPORT ON THE HEALTH OF THE PRISONERS, 1923.

In his despatch, No. 113 of February 7th, 1923, the Secretary of State directed that a section on the health and conditions of life of prisoners should be included in the Annual Medical Report of the Territory. Brief sections on this subject were included in the Annual Medical Reports for 1921 and 1922, but a questionnaire was circulated to Medical Officers and Sub-Assistant Surgeons in April, 1923, with instructions to collect materials for the reply to be forwarded with their Annual Medical Reports for 1923.

Full information has been obtained concerning twenty-five prisons and, in ten instances, is supplied by European Medical Officers: in the remainder, Sub-Assistant Surgeons or Compounders are in medical charge and have furnished the replies.

There are altogether forty-four prisons in the Territory: several are at stations where the medical department is represented only by a Native Dresser or Asiatic Compounder: a few of the returns by Compounders have been considered sufficiently detailed and accurate for inclusion in this summary, but their opinions on the causes of death must be accepted with reserve.

Such of the information received as can usefully be tabulated will be found on pp. 161-168: it will be convenient here to consider the replies received on other subjects.

On the *Diet and Hours of Meals*, complete information has been received from eighteen stations: four of these stated that two meals a day are provided, usually at noon and 5.0 p.m.; fourteen that three meals a day is the rule, these meals being served at 5.30 or 6.0 a.m., noon, and 4.30 to 6.0 p.m. Among the unsophisticated, two or one meal a day is the usual native custom, and it is principally in the remoter stations that two meals only are allowed. Replies on the subject of diet are mostly to the effect that the diet is according to the scale laid down: this was reproduced in the Annual Medical Report for 1922. A number add that green or fresh food is given "when available." The diet, according to calorie value, is probably ample, but two other matters connected with it are of equal or even greater importance and experience during the year under review makes it doubtful whether this is yet generally recognised by the police, or even the medical staff. In last year's report reference was made to these factors, viz.:—

(1) The storage and cooking of food.

(2) The importance of the inclusion of fresh uncooked or lightly cooked food in the dietary.

A serious outbreak of disease at the Central Gaol, Morogoro, in the early months of the year, which was investigated by the Senior Sanitation Officer and the Director of the Laboratory, is discussed below and serves to emphasise the importance of these subjects, which are impressed upon prison officers and the medical staff by the Administrative Officers of the Medical Department when on tour. An interesting article on the use of germinated pulses and beans, by Major Jolly, I.M.S., which appeared in the Indian Medical Gazette for June, 1923, was forwarded to the Commissioner of Police and to some of the Medical Staff: some of the pulses and beans enumerated by Major Jolly are grown in this Territory and, in the opinion of the writer, the use of these foods, germinated by the processes described, would have a distinct effect on the sickness and death rate in gaols. In prison gardens, which are maintained at many gaols, should be grown foods which can be eaten uncooked, as well as the usual staple articles of diet.

Under the heading "*Prevailing Diseases*," Malaria is mentioned twelve times; respiratory diseases, principally Bronchitis and Influenza, sixteen times; Diarrhoea and Ulcers, seven times each; minor injuries, nine times; Venereal diseases, four times; Dysentery is mentioned once, as are also Ankylostomiasis, Schistosomiasis and Boils. Chicken-pox and Tæniasis are twice mentioned.

The *Labour* upon which convicts are employed is of a varied description: the replies mention, of skilled or semi-skilled employment, rope-making (1), soap-making (1), mat-making (5), carpentering (2), tailoring (5). Of unskilled occupations are mentioned wood-cutting (14), water carrying (7), road-making and repairing (10), lime-burning (5), "manual labour" (8), agriculture, including work in the prison garden (7), sanitary work and grass-cutting (8), township and station improvements (6), building—chiefly of prison and police lines—(8), stone-quarrying and breaking (3), white-washing buildings (1), brick-making (2), pumping water (1), carrying firewood (2). Probably at all stations the conservancy work of the gaol and police lines is performed by the convicts, although this is mentioned twice only.

The *Hours of Work* in the great majority of returns are stated as:—

Week days, except Saturdays: 6.0 or 6.30 a.m. to 4 or 4.30 p.m., with one hour's rest in the middle of the day.

Saturdays: 6.0 or 6.30 a.m. to 12 noon.

Sundays: Only essential sanitary duties.

In two instances an interval of two instead of one hour is allowed in the middle of the day.

The *System of Confinement* is reported to be by Association cells in twenty-three replies, by the separate system in one (Iringa) and, in one reply, is not stated. In addition there are five single cells at Bukoba, four at Moshi, and three solitary confinement cells at Dar-es-Salaam.

*Sanitary buckets* are provided at night for each occupied cell at twenty-two prisons. There is no information on this point from three prisons (Mwanza, Moshi and Utete).

*Drinking water* is provided at night in each occupied cell at twenty-three prisons : is not provided at one (Utete), and no reply to the question is given regarding Mwanza.

The number of *Blankets* supplied at night varies from one to three, according to the climate of the station and the season of the year : in many cases a mat or hide is mentioned as being also provided.

The *Clothing* is reported to be sufficient in all cases (21) in which the question on this subject is answered.

As will be seen from the Table on pp. 161-168, there were 76 *Deaths* amongst convicts in these 25 gaols, which contained an *Average Number* of 1,560.3 convicts, giving a death rate of 49 per 1,000. If, however, Morogoro gaol is excluded, the death rate becomes 32, approximately per 1,000.

*The Causes of Death* may be tabulated as follows :—

<i>Infective Diseases.</i>				<i>Nervous System.</i>			
Dysentery	..	..	4	Apoplexy	..	..	1
Influenza	..	..	5	Epilepsy	..	..	5-6
Malaria	..	..	2	<i>General Diseases.</i>			
Pneumonia	..	..	8	Anæmia	..	..	1
Tuberculosis	..	..	8-27	Debility	..	..	2
<i>Circulatory and Respiratory System.</i>				Scurvy	..	..	1-4
Valvular Disease of Heart			2	<i>Urinary System.</i>			
Chronic Bronchitis	..		1	Acute Nephritis	..		1
Broncho-pneumonia	..		1-4	Cystitis	..	..	2-3
<i>Digestive System.</i>				<i>Miscellaneous.</i>			
Diarrhœa	..	..	18	Enlarged Scrotum	..		1
Gastro Enteritis	..		1	Cellulitis and weakness	..		1
Gangrenous Appendicitis			1	Ruptured Spleen	..		1-3
Cirrhosis of Liver	..		2	<i>Animal Parasites.</i>			
Ascites	..	..	1-23	Ankylostomiasis	..		5
				Filariasis	..	..	1-6
				Total	..		76

Enquiry was also made concerning *Improvements* suggested by Medical Officers, and the resulting action by the Police Authorities. On the subject of diet, the suggestion that green food or germinated beans should be supplied was frequently made and was usually adopted by the Prison Authorities "as far as possible." Improvements recommended to cell accommodation were (1) improved ventilation; (2) cementing or re-cementing floors; (3) improved latrine accommodation and drainage : in a few instances it was possible to act upon these recommendations forthwith : in other cases they were noted for future action or for inclusion in the next Estimates.

For animal and insect pests the recommendations made were usually adopted by the Medical Officer or Police Authorities at once : traps and poison were employed against rats and mice : clothing was boiled to destroy bugs, lice and fleas, combated by cleansing, and disinfection of cells and increased attention to personal cleanliness of convicts. Some of the Medical Staff recommended that food should be stored in rat-proof bins ; a recommendation which may be heartily endorsed, but has still, in the majority of cases, to be adopted.

*Mwanza Prison.*—In the Annual Medical Report for 1922, eighteen deaths, eight of which were due to disease of the respiratory system, were recorded from this gaol. In his report for 1922, the Medical Officer remarked that improvements had been made to the unsatisfactory ventilation of the cells and "it will be interesting to see the effect on the mortality." In 1923, there were six deaths at this gaol, only one of which was due to respiratory disease. This gaol was inspected by the writer in September, 1923, and the ventilation of the cells was considered to be adequate.

	Arusha.	Bagamoyo.	Bukoba.
1. Number of Prisoners in Prison on 31/12/22 ..	46	19	192
2. Number of Persons committed to Prison, 1923	257	106	815
3. Number of Prisoners in Prison on 31/12/23 ..	49	44	135
4. Daily average number of Prisoners, 1923 ..	37.5	30	138
5. Number admitted to Prison sick-bay, 1923 ..	—	18	98
6. Number admitted to Native Hospital, 1923 ..	43	6	6
7. Daily average on Sick List .. .. .	1.36	1.61	9
8. Number of deaths of Prisoners, 1923 .. ..	—	1	3
9. Cause of death in each case (i) .. .. .	—	Pneumonia	Urethral Stricture and Cystitis
(ii) .. .. .	—	—	Gastro-enteritis
(iii) .. .. .	—	—	Valvular disease of the heart
(iv) .. .. .	—	—	—
(v) .. .. .	—	—	—
(vi) .. .. .	—	—	—
(vii) .. .. .	—	—	—
10. Period of detention in Prison prior to date of death .. .. . (i) .. .. .	—	11 months	69 days
(ii) .. .. .	—	—	60 days
(iii) .. .. .	—	—	30 days
(iv) .. .. .	—	—	—
(v) .. .. .	—	—	—
(vi) .. .. .	—	—	—
(vii) .. .. .	—	—	—
11. System of Confinement—Association cells (A.C.) or Single cells (S.C.) .. .. .	A.C.	A.C.	5 A.C. 5 S.C.
12. Cubic space available at night per Prisoner, taking average number .. .. .	320 c. ft.	500 c. ft.	255 c. ft.
13. Floor space ditto .. .. .	28 sq. ft.	42 sq. ft.	23 sq. ft.
14. Sanitary condition of Prison .. .. .	Very good	Extremely satisfactory	Good
15. Are floors of cells cemented? .. .. .	No	Yes	Yes
16. Vaccination: Number vaccinated, 1923 ..	87	59	—
Result:—Successful .. .. .	35	28	—
Modified .. .. .	—	12	—
Failures .. .. .	52	15	—
Number excused vaccination on account previous small-pox or successful recent vaccination .. .. .	The majority	66	—
Number not protected against small-pox..	?	—	No record
17. Infective Diseases: Number of cases of:—			
Chicken-pox .. .. .	1	—	—
Dysentery .. .. .	3	—	—
Influenza .. .. .	8	—	—
Other .. .. .	—	—	—
18. Insect and other Pests in Prison:—			
Lice .. .. .	Yes	—	—
Bugs .. .. .	—	—	—
Fleas .. .. .	—	—	—
Ornithodoros Moubata .. .. .	—	—	—
Rats .. .. .	Yes	—	Yes
Mice .. .. .	Yes	—	—
19. Is there a weight register? .. .. .	Yes	Yes	Yes
And is it up-to-date? .. .. .	Yes	Yes	Yes

	Dar-es-Salaam.	Dodoma.	Iringa.
1. Number of Prisoners in Prison on 31/12/22 ..	171	89	30
2. Number of Persons committed to Prison, 1923	555	181	357
3. Number of Prisoners in Prison on 31/12/23 ..	144	79	55
4. Daily average number of Prisoners, 1923 ..	166	83.2	48.63
5. Number admitted to Prison sick-bay, 1923 ..	71	92	—
6. Number admitted to Native Hospital, 1923 ..	54 and 15 to I.D.H.	8	7
7. Daily average on Sick List .. .. .	3	9.1	.36
8. Number of deaths of Prisoners, 1923 .. ..	6	—	2
9. Cause of death in each case (i) .. .. .	Tuberculosis Lungs	—	Pneumonia
(ii) .. .. .	Filariasis	—	Tuberculosis
(iii) .. .. .	Ankylostomiasis	—	—
(iv) .. .. .	Cystitis	—	—
(v) .. .. .	Tuberculosis of Lungs	—	—
(vi) .. .. .	Ankylostomiasis	—	—
(vii) .. .. .	—	—	—
10. Period of detention in Prison prior to date of death .. .. .	(i) .. .. . 22 days	—	1 week
(ii) .. .. .	21 months	—	3 weeks
(iii) .. .. .	5½ months	—	—
(iv) .. .. .	3½ years	—	—
(v) .. .. .	4½ months	—	—
(vi) .. .. .	5½ years	—	—
(vii) .. .. .	—	—	—
11. System of Confinement—Association cells (A.C.) or Single cells (S.C.) .. .. .	A.C. & 3 S.C.	A.C.	S.C.
12. Cubic space available at night per Prisoner, taking average number .. .. .	675 c. ft.	240 c. ft.	697 c. ft.
13. Floor space ditto .. .. .	—	22.7 sq. ft.	45 sq. ft.
14. Sanitary condition of Prison .. .. .	Good	Good	Good
15. Are floors of cells cemented? .. .. .	Yes	Yes	Yes
16. Vaccination: Number vaccinated, 1923 .. ..	—	No record	All protected by previous vaccination
Result:—Successful .. .. .	—	—	—
Modified .. .. .	—	—	—
Failures .. .. .	—	—	—
Number excused vaccination on account previous small-pox or successful recent vaccination .. .. .	—	—	—
Number not protected against small-pox ..	—	—	—
17. Infective Diseases: Number of cases of:—			
Chicken-pox .. .. .	15	28	—
Dysentery .. .. .	—	1	—
Influenza .. .. .	—	—	—
Other .. .. .	—	2 T.B.	—
18. Insect and other Pests in Prison:—			
Lice .. .. .	—	—	—
Bugs .. .. .	—	—	—
Fleas .. .. .	—	Yes	—
Ornithodoros Moubata .. .. .	—	—	—
Rats .. .. .	—	—	—
Mice .. .. .	—	—	—
19. Is there a weight register? .. .. .	Yes	Yes	Yes
And is it up-to-date? .. .. .	Yes	No.	Yes

	Kigoma.	Kilossa.	Kilwa.	Kondoa- Irangi.
1. Number of Prisoners in Prison on 31/12/22 ..	55	7	38	17
2. Number of Persons committed to Prison, 1923	238	89	173	187
3. Number of Prisoners in Prison on 31/12/23 ..	55	8	29	46
4. Daily average number of Prisoners, 1923 ..	57.49	10	30.30	41.9
5. Number admitted to Prison sick-bay, 1923 ..	120	—	—	—
6. Number admitted to Native Hospital, 1923 ..	16	—	2	32
7. Daily average on Sick List .. .. .	1	—	3	4.5
8. Number of deaths of Prisoners, 1923 .. ..	3	—	—	—
9. Cause of death in each case (i) .. .. .	Rupture of Spleen	—	—	—
(ii) .. .. .	Influenzal Pneumonia	—	—	—
(iii) .. .. .	Ascites	—	—	—
(iv) .. .. .	—	—	—	—
(v) .. .. .	—	—	—	—
(vi) .. .. .	—	—	—	—
(vii) .. .. .	—	—	—	—
10. Period of detention in Prison prior to date of death .. .. .	(i) .. .. . 326 days	—	—	—
(ii) .. .. .	89 days	—	—	—
(iii) .. .. .	20 days	—	—	—
(iv) .. .. .	—	—	—	—
(v) .. .. .	—	—	—	—
(vi) .. .. .	—	—	—	—
(vii) .. .. .	—	—	—	—
11. System of Confinement—Association cells (A.C.) or Single cells (S.C.) .. .. .	A.C.	A.C.	A.C.	A.C.
12. Cubic space available at night per Prisoner, taking average number .. .. .	498.22 c. ft.	449 c. ft.	643 c. ft.	900 c. ft.
13. Floor space ditto .. .. .	55 sq. ft.	60 sq. ft.	75 sq. ft.	60 sq. ft.
14. Sanitary condition of Prison .. .. .	Good	Good	Good	Good
15. Are floors of cells cemented? .. .. .	No	Yes	Yes	Yes
16. Vaccination: Number vaccinated, 1923 ..	No record	70	50	43
Result:—Successful .. .. .	—	30	25	8
Modified .. .. .	—	24	10	8
Failures .. .. .	—	16	15	5
Number excused vaccination on account previous small-pox or successful recent vaccination .. .. .	—	19	3	No record
Number not protected against small-pox..	—	—	5	—
17. Infective Diseases: Number of cases of:—				
Chicken-pox .. .. .	—	—	—	—
Dysentery .. .. .	1	—	—	—
Influenza .. .. .	7	—	—	—
Other .. .. .	12 Mumps	—	—	—
18. Insect and other Pests in Prison:—				
Lice .. .. .	Yes	—	—	—
Bugs .. .. .	Yes	Yes	—	—
Fleas .. .. .	Yes	—	—	—
Ornithodoros Moubata .. .. .	Yes	—	—	Yes
Rats .. .. .	Yes	—	—	—
Mice .. .. .	Yes	—	—	—
19. Is there a weight register? .. .. .	Yes	No	Yes	Yes
And is it up-to-date? .. .. .	Yes	—	Yes	Yes

	Lindi.	Lushoto.	Mikindani.
1. Number of Prisoners in Prison on 31/12/22 ..	50	23	15
2. Number of Persons committed to Prison, 1923	38	113	180
3. Number of Prisoners in Prison on 31/12/23 ..	281	16	15
4. Daily average number of Prisoners, 1923 ..	46	16	18
5. Number admitted to Prison sick-bay, 1923 ..	15	26	—
6. Number admitted to Native Hospital, 1923 ..	40	3	2
7. Daily average on Sick List .. .. .	5	·07	1·34
8. Number of deaths of Prisoners, 1923 .. ..	2	—	1
9. Cause of death in each case (i) .. .. .	Apoplexy	—	Cerebral Malaria
(ii) .. .. .	Anæmia	—	—
(iii) .. .. .	—	—	—
(iv) .. .. .	—	—	—
(v) .. .. .	—	—	—
(vi) .. .. .	—	—	—
(vii) .. .. .	—	—	—
10. Period of detention in Prison prior to date of death .. .. .	(i) .. .. . 31 days (ii) .. .. . 163 days (iii) .. .. . — (iv) .. .. . — (v) .. .. . — (vi) .. .. . — (vii) .. .. . —	— — — — — — —	19 days — — — — — —
11. System of Confinement—Association cells (A.C.) or Single cells (S.C.) .. .. .	A.C.	A.C.	A.C.
12. Cubic space available at night per Prisoner, taking average number .. .. .	844 c. ft.	758 $\frac{5}{8}$ c. ft.	254 c. ft.
13. Floor space ditto .. .. .	67 sq. ft.	50 sq. ft.	40 sq. ft.
14. Sanitary condition of Prison .. .. .	Very satisfactory	Fair	Fair, ventilation bad
15. Are floors of cells cemented? .. .. .	Yes	Yes	No
16. Vaccination: Number vaccinated, 1923 ..	No record	100	29
Result:—Successful .. .. .	—	43	13
Modified .. .. .	—	47	8
Failures .. .. .	—	10	8
Number excused vaccination on account previous small-pox or successful recent vaccination .. .. .	—	5	—
Number not protected against small-pox..	—	—	No record
17. Infective Diseases: Number of cases of:—			
Chicken-pox .. .. .	—	—	—
Dysentery .. .. .	—	—	—
Influenza .. .. .	—	—	—
Other .. .. .	—	2 Small-pox	4 Mumps
18. Insect and other Pests in Prison:— .. ..			
Lice .. .. .	—	—	—
Bugs .. .. .	—	—	—
Fleas .. .. .	—	—	—
Ornithodoros Moubata .. .. .	—	—	—
Rats .. .. .	—	—	—
Mice .. .. .	—	—	—
19. Is there a weight register? .. .. .	Yes	Yes	No.
And is it up-to-date? .. .. .	Yes	Yes	—

	Morogoro.	Moshi.	Mwanza.
1. Number of Prisoners in Prison on 31/12/22 ..	174	53	119
2. Number of Persons committed to Prison, 1923	182	254	274
3. Number of Prisoners in Prison on 31/12/23 ..	178	43	135
4. Daily average number of Prisoners, 1923 ..	161	38.5	164.67
5. Number admitted to Prison sick-bay, 1923 ..	187	—	147
6. Number admitted to Native Hospital, 1923 ..	91	4	25
7. Daily average on Sick List .. .. .	8 to 10	3.25	19.83
8. Number of deaths of Prisoners, 1923 .. ..	31	—	6
9. Cause of death in each case (i) .. .. .	—	—	Epilepsy
(ii) .. .. .	—	—	Chronic
(iii) .. .. .	—	—	Dysentery
(iv) .. .. .	—	—	Cirrhosis
(v) .. .. .	See page 169	—	of Liver
(vi) .. .. .	—	—	Gangrenous
(vii) .. .. .	—	—	Appendicitis
10. Period of detention in Prison prior to date of death .. .. .	—	—	Double
(i) .. .. .	—	—	Pneumonia
(ii) .. .. .	—	—	Amœbic
(iii) .. .. .	—	—	Dysentery
(iv) .. .. .	See page 169	—	—
(v) .. .. .	—	—	5 months
(vi) .. .. .	—	—	15 months
(vii) .. .. .	—	—	14½ months
11. System of Confinement—Association cells (A.C.) or Single cells (S.C.) .. .. .	A.C.	1 A.C.	A.C.
12. Cubic space available at night per Prisoner, taking average number .. .. .	300 c. ft.	4 S.C.	400 c. ft.
13. Floor space ditto .. .. .	20 sq. ft.	571 c. ft.	32 sq. ft.
14. Sanitary condition of Prison .. .. .	Good	57 sq. ft.	Very Good
15. Are floors of cells cemented? .. .. .	Yes	Satisfactory	Yes
16. Vaccination: Number vaccinated, 1923 ..	144	Yes	No record
Result:—Successful .. .. .	140	—	—
Modified .. .. .	4	—	—
Failures .. .. .	—	—	—
Number excused vaccination on account previous small-pox or successful recent vaccination .. .. .	—	—	—
Number not protected against small-pox..	144	—	—
17. Infective Diseases: Number of cases of:—			
Chicken-pox .. .. .	15	—	—
Dysentery .. .. .	6	—	—
Influenza .. .. .	—	14	—
Other .. .. .	—	—	—
18. Insect and other Pests in Prison:—			
Lice .. .. .	—	—	No information
Bugs .. .. .	Yes	—	—
Fleas .. .. .	—	—	—
Ornithodoros Moubata .. .. .	—	—	—
Rats .. .. .	Yes	Yes	—
Mice .. .. .	—	—	—
19. Is there a weight register? .. .. .	Yes	Yes	No information
And is it up-to-date? .. .. .	(For long sentence convicts)	Yes	No information

	Namanyere.	Pangani.	Singidda.
1. Number of Prisoners in Prison on 31/12/22 ..	13	24	5
2. Number of Persons committed to Prison, 1923	132	299	67
3. Number of Prisoners in Prison on 31/12/23 ..	14	33	25
4. Daily average number of Prisoners, 1923 ..	20.09	30.2	18
5. Number admitted to Prison sick-bay, 1923 ..	3	—	—
6. Number admitted to Native Hospital, 1923 ..	—	1	25
7. Daily average on Sick List .. ..	3.19	4.5	.5
8. Number of deaths of Prisoners, 1923 .. ..	—	—	—
9. Cause of death in each case (i) .. ..	—	—	—
(ii) .. ..	—	—	—
(iii) .. ..	—	—	—
(iv) .. ..	—	—	—
(v) .. ..	—	—	—
(vi) .. ..	—	—	—
(vii) .. ..	—	—	—
10. Period of detention in Prison prior to date of death .. ..	—	—	—
(i) .. ..	—	—	—
(ii) .. ..	—	—	—
(iii) .. ..	—	—	—
(iv) .. ..	—	—	—
(v) .. ..	—	—	—
(vi) .. ..	—	—	—
(vii) .. ..	—	—	—
11. System of Confinement—Association cells (A.C.) or Single cells (S.C.) .. ..	A.C.	A.C.	A.C.
12. Cubic space available at night per Prisoner, taking average number .. ..	483.33 c. ft.	400 c. ft.	No information
13. Floor space ditto .. ..	48.33 sq. ft.	37 sq. ft.	—
14. Sanitary condition of Prison .. ..	Good	Very Good	Satisfactory
15. Are floors of cells cemented? .. ..	No	Yes	No
16. Vaccination: Number vaccinated, 1923 ..	53	20	42
Result:—Successful .. ..	17	20	37
Modified .. ..	2	—	3
Failures .. ..	34	—	2
Number excused vaccination on account previous small-pox or successful recent vaccination .. ..	—	—	30
Number not protected against small-pox ..	No record	No record	2
17. Infective Diseases: Number of cases of:—			
Chicken-pox .. ..	—	—	—
Dysentery .. ..	—	—	—
Influenza .. ..	—	—	—
Other .. ..	—	—	—
18. Insect and other Pests in Prison:—			
Lice .. ..	—	—	—
Bugs .. ..	—	—	—
Fleas .. ..	—	—	Yes
Ornithodorus Moubata .. ..	—	—	—
Rats .. ..	—	Yes	Yes
Mice .. ..	—	—	—
19. Is there a weight register? .. ..	Yes	Yes	No
And is it up-to-date? .. ..	Yes	Yes	—

	Songea.	Tabora.	Tanga.
1. Number of Prisoners in Prison on 31/12/22 ..	50	176	114
2. Number of Persons committed to Prison, 1923	137	581	344
3. Number of Prisoners in Prison on 31/12/23 ..	32	113	124
4. Daily average number of Prisoners, 1923 ..	23	133	116
5. Number admitted to Prison sick-bay, 1923 ..	29	195	—
6. Number admitted to Native Hospital, 1923 ..	18	17	22
7. Daily average on Sick List .. .. .	6	9	1.08
8. Number of deaths of Prisoners, 1923 .. ..	1 (insane)	7	5
9. Cause of death in each case (i) .. .. .	Pneumonia	Epilepsy	Pneumonia and Pleurisy
(ii) .. .. .	—	Double Pneumonia	Chronic Diarrhoea
(iii) .. .. .	—	T.B., Pulmonary	Chronic Bronchitis
(iv) .. .. .	—	Epilepsy	Cellulitis and Weakness
(v) .. .. .	—	Epilepsy	Senile Debility
(vi) .. .. .	—	Epilepsy	—
(vii) .. .. .	—	Malaria	—
10. Period of detention in Prison prior to date of death .. .. .			
(i) .. .. .	1 week	2 months	1 year 8 days
(ii) .. .. .	—	2 months	1 year 2 days
(iii) .. .. .	—	4½ months	6 months
(iv) .. .. .	—	2½ years	1 month
(v) .. .. .	—	7 months	2 months
(vi) .. .. .	—	8 months	—
(vii) .. .. .	—	8 months	—
11. System of Confinement—Association cells (A.C.) or Single cells (S.C.) .. .. .	A.C.	A.C.	A.C.
12. Cubic space available at night per Prisoner, taking average number .. .. .	500 c. ft.	300 c. ft.	500 c. ft.
13. Floor space ditto .. .. .	35 sq. ft.	27 sq. ft.	35 sq. ft.
14. Sanitary condition of Prison .. .. .	Satisfactory	Good	Bad
15. Are floors of cells cemented? .. .. .	No	Yes	Yes
16. Vaccination: Number vaccinated, 1923 ..	—	No record	75
Result:—Successful .. .. .	—	—	45
Modified .. .. .	—	—	—
Failures .. .. .	—	—	30
Number excused vaccination on account previous small-pox or successful recent vaccination .. .. .	—	—	—
Number not protected against small-pox..	All	—	—
17. Infective Diseases: Number of cases of:—			
Chicken-pox .. .. .	3	—	17
Dysentery .. .. .	—	6	—
Influenza .. .. .	—	61	—
Other .. .. .	—	4 Mumps 1 T.B. Pulmonary	—
18. Insect and other Pests in Prison:—			
Lice .. .. .	—	—	—
Bugs .. .. .	—	—	Yes
Fleas .. .. .	—	—	—
Ornithodorus Moubata .. .. .	—	—	—
Rats .. .. .	—	Yes	Yes
Mice .. .. .	—	—	—
19. Is there a weight register? .. .. .	Yes	Yes	Yes
And is it up-to-date? .. .. .	Yes	Yes	Yes

	Tunduru.	Tukuyu.	Utete.
1. Number of Prisoners in Prison on 31/12/22 ..	—	124	17
2. Number of Persons committed to Prison, 1923	17	299	75
3. Number of Prisoners in Prison on 31/12/23 ..	3	106	16
4. Daily average number of Prisoners, 1923 ..	3.4	106	23.5
5. Number admitted to Prison sick-bay, 1923 ..	—	—	25
6. Number admitted to Native Hospital, 1923 ..	—	124	—
7. Daily average on Sick List .. ..	.08	6	2.2
8. Number of deaths of Prisoners, 1923 .. ..	—	7	1
9. Cause of death in each case (i) .. ..	—	Acute	Ankylostomiasis.
(ii) .. ..	—	Nephritis	—
(iii) .. ..	—	Influenzal	—
(iv) .. ..	—	Pneumonia	—
(v) .. ..	—	"	—
(vi) .. ..	—	Broncho-	—
(vii) .. ..	—	Pneumonia	—
10. Period of detention in Prison prior to date of death .. ..	—	Influenzal	—
(i) .. ..	—	Pneumonia	—
(ii) .. ..	—	Pericarditis	—
(iii) .. ..	—	3 months	15 years
(iv) .. ..	—	3½ months	—
(v) .. ..	—	2 months	—
(vi) .. ..	—	7 weeks	—
(vii) .. ..	—	6½ months	—
11. System of Confinement—Association cells (A.C.) or Single cells (S.C.) .. ..	A.C.	3 weeks	—
12. Cubic space available at night per Prisoner, taking average number .. ..	921 c. ft.	2 weeks	—
13. Floor space ditto .. ..	102 sq. ft.	—	—
14. Sanitary condition of Prison .. ..	Excellent	1,350 c. ft.	—
15. Are floors of cells cemented? .. ..	No	72 sq. ft.	Satisfactory
16. Vaccination: Number vaccinated, 1923 ..	7	No information	No
Result:—Successful .. ..	7	No	24
Modified .. ..	—	27	10
Failures .. ..	—	4	7
Number excused vaccination on account previous small-pox or successful recent vaccination .. ..	—	34	7
Number not protected against small-pox..	No record	—	51
17. Infective Diseases: Number of cases of:—	—	No record	24
Chicken-pox .. ..	—	—	—
Dysentery .. ..	—	—	3
Influenza .. ..	—	136	—
Other .. ..	—	—	—
18. Insect and other Pests in Prison:—	—	—	—
Lice .. ..	—	Yes	—
Bugs .. ..	—	Yes	—
Fleas .. ..	—	—	—
Ornithodorus Moubata .. ..	—	—	—
Rats .. ..	—	—	Yes
Mice .. ..	—	—	—
19. Is there a weight register? .. ..	No	Yes	No
And is it up-to-date? .. ..	—	Yes	—

*Morogoro Prison.*—During 1923 there were thirty-one deaths at this gaol compared to three in 1922.

The cause of death in 1923 and the periods of detention in gaol, prior to death, were as follows:—

Cause of Death.	Period of Detention.			Cause of Death.	Period of Detention.		
	Yrs.	Mos.	Days.		Yrs.	Mos.	Days.
1. Tuberculosis .. ..	1	8	7	16. Diarrhœa .. ..	2	8	14
2. Dysentery and Debility	2	1	12	17. „ .. ..	1	0	1
3. Ankylostomiasis ..		8	23	18. „ .. ..	3	1	19
4. „ .. ..	2	4	13	19. „ .. ..	3	5	3
5. Tuberculosis of Lungs	1	8	14	20. „ .. ..	2	2	7
6. „ .. ..	4	1	0	21. „ .. ..	2	3	11
7. Diarrhœa .. ..		9	1	22. „ .. ..	3	10	7
8. Diarrhœa and Tape Worms .. ..	5	1	27	23. „ .. ..	1	9	0
9. Heart Disease ..	2	1	18	24. „ .. ..		11	23
10. Diarrhœa and Debility	2	8	2	25. Pneumonia .. ..		2	16
11. Dysentery .. ..	6	1	10	26. Enlarged Scrotum ..	2	4	0
12. Diarrhœa .. ..	7	3	29	27. Diarrhœa and Debility		6	26
13. „ .. ..	2	5	7	28. Tuberculosis of Lungs	2	7	3
14. „ .. ..	1	1	18	29. Cirrhosis of the Liver		2	25
15. „ .. ..	2	6	8	30. Scurvy and Diarrhœa	3	2	13
				31. Progressive Debility..		11	26

As a result of an inspection of this first class prison in July, 1921, the writer unhesitatingly condemned it as unfit and incapable of being made fit for use as a prison; recommended that it should be evacuated and a new gaol built on a more suitable site. Two successive Senior Sanitation Officers have made closely similar reports. The Sub-Assistant Surgeon has reported the sanitary condition of this gaol to be “good”: it has not been possible, owing to shortage in the staff, to station a European Medical Officer at Morogoro during any part of 1923. The Senior Sanitation Officer inspected the Morogoro prison in May, 1923, and reported “that the buildings were neither well designed nor well built, further, that a “portion of the gaol has recently fallen down and been re-erected”; that there were many bugs and that it is doubtful if they could be eradicated. A new gaol is to be constructed.

That the majority of the deaths in 1923 amongst convicts detained in this gaol were due to dietetic errors, there can be no doubt. The Director of Laboratory mentions in his report, p. 199, the result of his investigations into a few cases of Diarrhœa and Debility which occurred in the early months of the year. The adoption of the recommendations which he and the Senior Sanitation Officer made on the dietary stopped the occurrence of new cases of Diarrhœa, but many of those already in hospital were beyond the stage where recovery was possible. There were four deaths from Tuberculosis in this gaol.

*Tanga.*—It will be observed that the Acting Senior Medical Officer, Tanga, has described the sanitary condition of this gaol as “bad.” Five convicts confined in this gaol died during 1923 and, in four of these cases, to the principal cause of death is added “Debility.”

The Medical Officer of Health, Tanga (p. 78), refers to the unsatisfactory latrines and food store, matters which were reported upon by the writer and the Senior Sanitation Officer after inspections of this gaol in the year under review.

The structural alterations required to improve the latrine accommodation are extensive: plans and estimates have been submitted. The food storage question is one which applies to many prisons and can be best met by the provision of rat-proof stores and bins, which the Commissioner of Police and Prisons has been advised to provide.

*Inspections.*—The Principal Medical Officer inspected the Tanga, Tabora, Mwanza and Shinyanga goals during 1923, and reports on them were forwarded to the Honourable the Chief Secretary and the Commissioner of Police and Prisons.

The Senior Sanitation Officer inspected Pangani, Tanga, Moshi, Arusha, Mikindani, Kilwa, Morogoro and Lindi gaols in 1923; copies of his reports were forwarded to the Commissioner of Police and Prisons.

## RECOMMENDATIONS.

1. *Diet*.—Errors in diet are the principal cause of sickness and mortality amongst convicts. Our knowledge of food deficiency diseases has been extended so greatly in recent years that there is now, under normal conditions, little or no excuse for their appearance on prison returns. Attention is required to the following:—

(a) *Variety*.—Fresh uncooked or very lightly cooked food should form a part of every day's diet. Fruit is readily obtained at some stations; vegetables, native or other, at most. Whenever possible, every prison should have a prison garden in which, whatever else may be grown, there should be fruit—bananas, oranges, limes, lemons, mangoes, pawpaws, etc., and green vegetables, pumpkins, sweet potatoes, etc., and it should be the duty of the keeper of the gaol to see that the prisoners actually get these foods: this duty cannot safely be left to the native warders. When, owing to the season of the year or other causes, fresh fruit or vegetables cannot be obtained, germinated pulses and beans should be provided. There is a tendency to a too rigid adherence to the bare minimum of the diet scale. It is hardly possible to lay down a definite scale of fruit and vegetables, for the local resources vary so widely in different parts of the country and at the different seasons of the year.

(b) *Storage*.—This is of little less importance than variety. It is, unfortunately, by no means uncommon to see prison stores of grains so badly damaged by weevils, etc., that the nutritive value must be greatly reduced. Storage should be in rat-proof bins or stores; the greatest care is necessary to see that on receipt from the contractor, the food is in good condition and, lastly, that new supplies of grain are not placed in bins or stores already infested with weevils: the old stock remaining should be turned out and aired and the bins or stores thoroughly cleaned before the new stock is stored.

(c) *Cooking*.—This is womens' work according to native custom and, wherever possible, should be performed by female convicts. The practice of stewing the rations for many hours until all trace of anti-scorbutic and anti-beri-beri principles has been destroyed is too common. Personal supervision on the part of the European Prison Staff is essential.

These questions of diet are of particular importance in the case of long sentence prisoners and those who, for various reasons, are employed within the prison walls.

It is interesting to note that an outbreak of Beri-beri occurred in the Freetown (Sierra Leone) Gaol in 1922 (Annual Medical and Sanitary Report by the Director of Medical and Sanitary Services, Sierra Leone, 1922). There were fifty-nine cases with three deaths. The outbreak was investigated by the Director, Sir Alfred Lewis Jones Research Laboratory, who considered that the methods of preparation and the prolonged cooking reduce the vitamine content of the diet to such a level that, at the time of year when the grain has already by age and storage lost much of its value, it is insufficiently rich in accessories to prevent Beri-beri. He remarks that animals, on a diet which will ultimately result in the production of Neuritis, show loss of weight and very commonly develop gastro intestinal disorders before the stage of Neuritis is reached, and that one may expect the same sequence of events to occur in human beings on a diet deficient in water soluble B. vitamine. It is also noted in this Annual Report that there was an outbreak of diarrhoea from which one prisoner died shortly before the outbreak of Beri-beri, and that Diarrhoea and Dysentery were important causes of deaths in previous years: further, that half the deaths in 1922 and 57 per cent. of the cases of Beri-beri in Freetown Gaol occurred in tailors, who formed only 15 per cent. of the daily average strength of prisoners.

These observations corroborate the remarks of the Senior Medical Officer, Tabora (Dr. C. L. Ievers), concerning the outbreak of Beri-beri in Tabora Gaol, reported in the Annual Medical Report of Tanganyika Territory for 1922. It is the prisoners who are detailed for indoor duties and are thus deprived of the opportunity of supplementing their rations by fresh fruits on whom the incidence of the disease falls more heavily.

2. *Accommodation*.—Association cells are the rule in East Africa and, though they may present disadvantages from a sanitary view point, solitary confinement is such a serious punishment to the native that a change of system is not urged. Attention should, of course, be paid to the separations of juveniles and first offenders from hardened criminals.

The floors of all cells should be cemented and the walls free of crevices, the lower 18 or 24 inches of the walls should be cemented, the upper parts smoothly plastered and white-washed at frequent intervals.

Ventilation must be free. Unfortunately, in the early days of the British occupation, additions were hastily made to existing prisons or other buildings, and unsuitable structural alterations carried out by Police Officials without obtaining advice, notably at Morogoro.

No structural alterations should be carried out without the consent in writing of the Medical Officer of Health or Medical Officer of the gaol and the Public Works Department. The temptation to make use of a supply of free labour without troubling anyone, is a strong one: it must be resisted. It has led to the existence of some badly constructed, ill-arranged and insanitary prisons and, in the early days, was unavoidable: it was then a question of providing some accommodation or none. Under the new Township Rules these faults in building should not occur.

Except in a few stations where a water borne system is possible, a satisfactory type of bucket latrine is necessary: the buckets should be removed from outside by a trap door, and the floor of the latrine cemented and provided with foot rests. An incinerator is required near at hand and will probably serve the police lines as well as the gaol.

3. *Hospital Accommodation*.—It has always been the opinion of the writer that sick convicts should report at the Government hospital or dispensary and that those requiring hospital treatment should be detained there. Diagnosis in Tropical medicine is so largely dependent upon microscopical examination that the institution in prisons of hospital wards, where facilities for such examination cannot be provided, is to be discouraged. The time occupied in these daily visits to the gaol by the Medical Officer is also a consideration. The detention of convicts in the Government hospitals necessitates the provision of special guards: this cannot be avoided. In draft plans for new native hospitals submitted by the Medical Department to the Public Works Department, special accommodation for convicts has been inserted and, except as observation wards, where a sick prisoner, considered unfit for work, may be detained for one or two days, hospital wards in prisons should be abolished. Needless to say, that, in addition to the disadvantage in the matter of diagnosis mentioned above, it is almost impossible to provide efficient attendance, treatment or dieting, in such places. It should be mentioned that the Commissioner of Police and Prisons has always expressed his agreement that the Medical Officer should order to his native hospital any convict whose case he considers necessitates this measure. Local opposition to the provision of the necessary guards is, however, sometimes difficult to overcome, especially at stations where the Medical Department is represented by an Asiatic subordinate.

4. *Lepers and Lunatics*.—The detention, in ordinary gaols, of criminal lepers and lunatics causes great inconvenience to the Prison Authorities and the arrangements for the care of such persons are inadequate. The construction of the asylum at Morogoro will, it is hoped, meet these difficulties, so far as the insane criminal is concerned, in all but the remote out-stations.

In last year's report, mention was made of a proposed establishment for criminal lepers at Morogoro: unfortunately, it has been decided that the scheme is not to be carried out. These lepers will therefore be detained in the ordinary gaols as hitherto.

## VI. SCIENTIFIC.

### THIRD REPORT UPON TREATMENT WITH BISMUTHO SODIUM AND POTASSIUM TARTRATE.

The use of this salt in the Territory was initiated in 1922 by the Acting Principal Medical Officer (Dr. J. O. Shircore) and previous reports upon the results obtained appeared in the Annual Medical Reports of the Territory for 1921 and 1922.

The preparations employed in 1923 were supplied by Messrs. May and Baker, Messrs. Morson, and Messrs. Martindale, the last-named firm supplying two preparations—Bismuth Sodium Tartrate and Bismuth Potassium Tartrate.

Several misfortunes occurred in the use of the salt in the doses (grains 6) and the method of administration (intravenous) originally employed: instructions were therefore issued to reduce the dose to two grains and employ the intramuscular route of injection. The fact that intramuscular injection causes pain, though not of severe degree, led to some delay in the adoption of the instructions at some stations, but the intramuscular route is now universally adopted. A memorandum by Major A. O. Frost, R.A.M.C., on Bismuth Sodium and Potassium Tartrate, states that "it is ten times more toxic intravenously than into the muscles"; he considers that, in the treatment of Syphilis, it is "a more active salt than mercury and should not replace arsenic."

The reports from Medical Officers on the use of B.S.P.T. have been increasingly favourable and, in dealing with the large numbers of cases of Yaws and Syphilis which present themselves at the hospitals, its low cost is a great consideration. The immediate results of the treatment are very encouraging: unfortunately, the patients seldom continue attendance for a complete course, and the ultimate results are very seldom known. This remark, of course, applies equally to other more expensive forms of treatment and, under the circumstances, the production of non-infectivity to others is the best that can be hoped for. If attained, a gradual reduction of the number of cases may be confidently expected.

It is a form of treatment which might well, under a certain degree of supervision, be entrusted to trained native subordinates at village dispensaries, and only in this way can one hope to bring the treatment within the reach of the vast majority of the infected population. A beginning has been made by posting a native dispenser to Negeze in Shinyanga sub-district of Tabora where, as mentioned earlier (p. 105), Sultan Makwaia has erected a native hospital with some assistance from the Government.

At the Sewa Hadji Hospital, Dar-es-Salaam, the Medical Officer (Dr. J. M. Semple) has treated, during 1923, 271 cases of Yaws and 144 of Syphilis with B.S.P.T. He states that, unless detained as in-patients (and, even then, they not infrequently run away), the natives cease attending after definite improvement shows itself. The pressure on the available accommodation at this hospital prevents the detention of any considerable number. Dr. Semple has used four preparations, and reports as follows:—

B. Sodium Tartrate (Martindale)—dose used, 2.5 grs. intramuscularly or 1.2 grs. intravenously. Stomatitis developed in 26 per cent.

B. Potassium Tartrate (Martindale): dose used, 2 grains intravenously. Stomatitis developed in 14.3 per cent.

B. Sodium Potassium Tartrate (Morson): dose used, 1.2 grs. intramuscularly or  $\frac{1}{2}$ -2 grs. intravenously. Stomatitis developed in 8.6 per cent.

B. Sodium Potassium Tartrate (May and Baker): dose used, 1 grain intramuscularly. Stomatitis developed in 0.8 per cent.

In a large number of these cases a Wasserman test was made before commencing treatment, but, as the patients did not return for a second test, the effect of the treatment on the re-action is not known.

At Tanga, the Senior Medical Officer (Dr. T. H. Suffern), reports that he has latterly treated Syphilis and Yaws with B.S.P.T., and that "though not so satisfactory as the arsenic preparations, sufficient improvement is produced to induce the patients to persevere and to come in increased numbers." One patient developed a virulent stomatitis with much swelling of the tongue and gums and bloodstained salivation, and died fourteen days after an intravenous injection of 2 grs.

At Arusha, the Medical Officer has tried B.S.P.T. in three cases of Tick Fever: he reports that the drug had no effect on the temperature, the presence of spirilla in the blood or on relapses, which occurred in each case: one of the cases (a K.A.R. askari) had already been treated for the disease in Dar-es-Salaam. The drug is now given in 2 to 2½ grain doses every fifth day for Yaws and Syphilis: he reports that two to four doses clear up ordinary secondary cases of Yaws: one case of Primary Syphilis cleared up after two injections, but returned later with marked secondary symptoms. Early in the year, when employing the intravenous route and a dose of 6 grains, a male Wa-Arusha, aged 25, with secondary Yaws, but otherwise apparently healthy, died from syncope a few minutes after his first injection. Post-mortem; the small intestine was found to be "full of round worms."

At Dodoma, Dr. D. S. Scott (Medical Officer), and his successor, Sub-Assistant Surgeon Chunilal, treated 83 cases of Primary Syphilis, 23 of Secondary Syphilis, and 53 of Yaws. Early in the year, 6 grains intravenously was the dose employed, and there were five fatalities under this treatment. The drug was found to have a rapidly curative effect on the lesions.

At Mwanza, during 1923, 288 cases of Syphilis and 33 of Yaws were treated, but B.S.P.T. was not in use until the second half of the year and no details are furnished as to the results obtained with the drug.

At Morogoro, S.A.S. Borsada treated 160 cases of Yaws; 2 of Primary, 89 of Secondary, and 2 of Tertiary Syphilis with B.S.P.T. Of these, 108 cases of Yaws; 2 of Primary, 54 of Secondary, and 2 of Tertiary Syphilis had at least six intramuscular injections of 2 grains and were kept under observation: to the end of the year they showed no return of symptoms. Only two patients—and those emaciated individuals—showed toxic symptoms. One case of Tick Fever, after a 3 grain intravenous injection, had no relapse.

At Singida, the Sub-Assistant Surgeon in charge treated 12 cases of Primary and 16 of Secondary Syphilis and 11 cases of Yaws with B.S.P.T., mostly by 2 grain doses intramuscularly. Eleven Primary and 11 Secondary Syphilis and 7 Yaws cases received 4 up to 10 injections and are returned as cured: the other cases discontinued attendance. 25 cases developed Stomatitis, mostly the earlier cases, who received doses of 3 or 4 grains intravenously. There were no fatalities.

At Pangani, the Sub-Assistant Surgeon in charge treated 119 cases of Yaws and 20 of Syphilis mostly with a total of 8 to 10 grains of B.S.P.T. in 5 doses. The results are reported as "extremely satisfactory," but in several cases, bleeding from the gums was observed. In one of the earlier cases, after a 5 grain dose, the tongue swelled, the mouth became foul and septic, and the patient died.

The drug has been used at other stations from which incomplete information was submitted: at one of these it is reported that the results were unsatisfactory, but in what respect is not stated.

Reports from Miss Iles, Universities Mission to Central Africa, Dr. J. G. McNaughton, Acting Senior Medical Officer, Tabora, and Sub-Assistant Surgeon Moole (Mikindani) are reproduced below.

#### SUMMARY.

The Bismuth preparations used have very decided curative effects on cases of Yaws and Primary and Secondary Syphilis. Used with care, in 2 grain doses for adults intramuscularly at 5 or 7 day intervals, no serious risk of the development of grave toxic symptoms is to be feared. Several hundreds of cases of Yaws and Syphilis has been so treated during the year with very encouraging results. As Miss Iles emphasises, emaciated and debilitated patients must be approached with great caution and every effort made to improve the general nutrition, if necessary, before specific treatment is commenced. The state of general nutrition of a large number of natives is extremely poor: they are, in fact, undernourished and, in times of scarcity, very decidedly so. Probably this accounts, in part at least, for the well recognised intolerance of natives of tropical Africa to mercury. The bismuth salts are at no great disadvantage in this respect compared with mercurials; from a therapeutic point of view, they appear to have the advantage.

In Tick Fever the few results reported are disappointing. Epilepsy in natives is such an unsatisfactory condition to treat that Dr. McNaughton's cases are of special interest.

J. B. DAVEY,

*Principal Medical Officer.*

Miss M. Iles, M.D. (Lond.), of the U.M.C.A., Lulindi, Lindi district, to whom a small supply of Bismuth Sodium Potassium Tartrate was given for trial, has very kindly forwarded a valuable report on her experiences in the treatment of Yaws with this Salt, from which the following notes are extracted :—

*Preparations employed :—*

I. Martindales soluble Bi.K.T. and Bi.Na.T. separately and, since November 8th, in combination according to the following formula :—

Bi.K.T.	...	...	...	...	...	grs.	30
Bi.Na.T.	...	...	...	...	...	grs.	30
NaH.CO <sub>3</sub>	...	...	...	...	...	grs.	10
Aq.	...	...	...	...	...	c.c.	120
Dose for an adult or child	...	...	...	...	...	3-4	c.c.
Dose for an infant in arms	...	...	...	...	...	2-3	c.c.

Once or twice a week, intravenously or into the Gluteus maximus.

II. Since December 13th, Howard's Tartrobismuthate of Soda in doses of gr. 6, for an adult, and grs.  $\frac{1}{2}$ -2 for children, by intramuscular injection into the Gluteus maximus.

*Remarks.*—Dose for dose, the curative power of the two preparations seems to be equal. More local swelling and tenderness is caused by Howard's salt, but none of the (12) adults returning for a second injection made complaint of toothache: one had a badly furred tongue. With the other preparations, stomatitis almost invariably developed in patients whose teeth were in bad condition or whose state of nutrition was poor. Miss Iles is of opinion that the results of treatment with Bi. are more lasting than those obtained with Novarsan.

*Results.*—The following conditions yield, for a time at least, to this treatment: (1) All Secondary Yaws; (2) of Tertiary Yaws :—

- (a) All ulcerations of soft tissue, provided the loss of skin is not too great.
- (b) Hydrops of joints and bursæ.
- (c) Osteitis of skull.
- (d) Pain in bones (but not in joints).
- (e) Ulceration of nose and throat.
- (f) Recent periosteal swellings will improve and may disappear: the outlook is least favourable in those affecting the hand.
- (g) Osteomata, diffuse, and localised, may be improved and become painless, but may be unaffected.

*Note.*—Miss Iles remarks that certain cases are very intractable and that good food is essential to success in treatment.

*Recurrence.*—Miss Iles considers that recurrence is probably certain in Tertiary Yaws, except when the disease is naturally dying out. In Secondary Yaws, recurrence is perhaps less common than after treatment with neosalvarsan, under which recurrence is common, unless the treatment is supplemented by a course of mercury.

*Return of Cases treated at Lulindi U.M.C.A. Hospital by Bismuth salts only:—*

	III. YAWS.		II. YAWS.			
	No. of Cases.	Usual amount Bi. Salt, grains.	“ Buba.”		“ Mimea.”	
			No. of Cases.	Usual amount Bi. Salt, grains.	No. of Cases.	Usual amount Bi. Salt, grains.
Result :—						
I. Lesions cured .. ..	36	8-10	12	4	2	4
II. „ last seen healing well .. ..	14	6- 8	10	5½	1	4
III. „ healing more or less; left during treatment for stomatitis .. ..	85	6	17	—	10	—
IV. Lesions healed except for ulcers in scar tissue or without sufficient skin to heal .. ..	8	10	—	—	—	—
V. Treatment changed, for stomatitis .. ..	4	—	1	—	1	—
VI. Treatment changed, for other reasons .. ..	6	—	7	—	1	—
VII. Remaining under treatment .. ..	51	—	20	—	12	—
VIII. Death .. ..	1	—	—	—	—	—
Total ..	205		67		27	

*Note.*—“ Buba ” refers to the crusted secondary lesions : “ Mimea ” to ulcerations.—*J.B.D.*

The death recorded was that of a fairly nourished woman, an out-patient, who had superficial ulcerations, an old perforation of the hard palate, and what appeared to be recent roughness around the perforation. She was given 1¼ gr. of Bi. Na. T. on October 13th. On October 29th she was brought back with a history of bleeding from the gums and stomach after the injection which improved, but recurred again a week after the injection, and was accompanied by incessant vomiting. She swallowed with great difficulty, vomited at times, and complained of pain over the lower part of the sternum. Her gums were spongy and her throat congested. The symptoms were relieved by morphia and, for two days, she kept down fluids given in ounce doses. On November 1st she brought up at once everything she swallowed. Novarsan, 0.3 gramme, was given intravenously, and by the evening she was swallowing comfortably. She improved until about November 8th, when the vomiting recurred, accompanied this time by Diarrhœa, and she died two days later.

*Toxic Symptoms after treatment :—*

1. Stomatitis and glossitis in nearly all adults, of slight degree, after 6-8 grains : in a few, with fair teeth, it occurred after the first or second dose. Never seen in children.
2. Aching in joints, universal in slight degree.
3. Congestion and aching of lesions—noticed by the observant.
4. Vomiting, directly after injection, 3 cases.
5. Vertigo, if patients walk after injection and, in the case of elderly persons, even if keeping quiet.
6. Palpitation of the heart : near the end or after the course of treatment,

BISMUTH SODAE POTASS : TARTR : IN THE TREATMENT OF EPILEPSY.  
 BY J. G. McNAUGHTON, M.D., M.R.C.P. (EDIN.), ACTING SENIOR MEDICAL OFFICER,  
 TABORA.

During the year 1923, sixteen lunatics (civil and criminal) were confined in Tabora Gaol ; of these, eight had frequent epileptic or epileptiform seizures.

Four died in the course of the year, and at the post-mortem examination, pachy-meningitis was found. This was probably the result of Tertiary Syphilis and was, in my opinion, the cause of the seizures. Acting on these surmises, I began to give injections of the Bismuth Sod. Potas. salt.

*First Case.*—Safi, a girl, patient in hospital, aged about five years, admitted to Tabora hospital in August, 1922 : fits were very frequent, sometimes as often as every day, and there was almost constant nocturnal incontinence of urine. On 14th, 20th and 30th November ; 6th, 15th, 25th December, 1923, and January 2nd, 1924, she was given intramuscularly grain  $\frac{1}{2}$  of the Bismuth salt. Since 14th November, there has not been a single fit and there has been no incontinence.

*Second Case.*—Kasele, a criminal lunatic killed his mother just after a fit at the end of September and was admitted to gaol on 4th October, 1923. As far as can be obtained, his history is as follows :—

In July,	1923	7 fits
„ August,	„	1 „
„ September,	„	2 „
„ October,	„	7 „ on the 13th, 14th and 30th.
„ November,	„	3 „ on the 11th, 15th and 20th.
„ December,	„	1 „ on December, 1st.

Injections of 2 grains of the Bismuth salt were given on December 12th, 19th, 27th, 1923, and on January 2nd, 1924. There have been no fits since the first injection, the patient is much more rational and normal.

*Third Case.*—Farajala, admitted 10th January, 1923. Very noisy and violent, but no history of fits : always worse at full moon ; had to be restrained with leg irons, since, in his violent attacks, he tried to assault warders and other inmates of the gaol ; he had to be periodically restrained every month, sometimes twice a month. He has received in all three injections to date, beginning on December 12th, and is now quiet and appears quite rational. No restraint has been required since 12th December.

*Fourth Case.*—Selemani, admitted 10th January, 1923, epileptic maniac ; his fit history since June is as follows :—

July	...	...	...	...	...	...	...	1
August	...	...	...	...	...	...	...	4
September	...	...	...	...	...	...	...	8
October	...	...	...	...	...	...	...	8
November	...	...	...	...	...	...	...	11

In December, fits on 5th, 6th : injection given on 12th December. Fits on 20th, 28th 29th 30th, 31st : injections repeated 19th and 27th December and 2nd January, 1924. Since 1st January there have been no fits.

*Fifth Case.*—Asmani, a case of acute mania, following on an epileptic fit. During this attack he broke, with a stick, the humerus of a man near him. Since he was admitted to prison he has had the following fits :—November 12th, 2 and December 7th, 1.

He received 4 injections of 2 grains of the Bismuth salt. Since then he has had no fits and has been extremely rational : he enquires on all possible occasions after the health of the man whom he attacked.

REPORT BY DR. J. G. McNAUGHTON, ACTING SENIOR MEDICAL OFFICER, TABORA.

The Senior Commissioner asked me to report on the disease locally known as “ Mti Mgonjwa.” In the Swahili dictionary the meaning of the phrase is given as “ ulcerating sores.” Over 80 of these cases were admitted, and I was fortunate in having the advice and guidance of the Hon. the Principal Medical Officer, in my examination and treatment.

After a thorough examination, we came to the conclusion that these were, in most cases, Tertiary Yaws, some of very long standing. In past years, such cases have been treated by injections of salvarsan, and have had clean dressings applied, and have been discharged apparently cured. In six months, as a rule, they are as bad as ever. One case in particular, a young woman, with extensive ulceration on all four limbs, I saw first in 1920. She was given three injections of "606," and healed very slowly. On my return here in February, 1923, she was again a patient; as bad as ever. She received intravenous injections of Tartar Emetic, but showed little sign of improvement. When the new supply of Bis. Sod. Pot. Tartrate arrived in September, injections of it were given, to the amount of grs. 2 weekly. She has gradually improved in appearance, is getting quite plump, and her ulcers are almost healed.

For Tertiary Yaws, the treatment is, without a doubt, injection of the Bismuth salt.

In some districts of Tabora there are hundreds of natives affected by this disease, and, in the near future, the hospital will be inundated by these cases, especially when those discharged cured are seen by their friends.

#### A BRIEF REPORT ON TREATMENT OF YAWS BY B.S.P.T. INJECTIONS BY SUB-ASSISTANT SURGEON Y. MOOLE, MIKINDANI.

Fourteen cases of Yaws were treated since the supply of the drug was received, the cases were treated by intra-muscular injections at the out-patient department.

The dosage was 3 grains for an adult and  $1\frac{1}{2}$  for a child. This was varied only in two cases.

The number of injections given in each case was four at an interval of five days. In most of the cases, the Yaws disappeared after the second dose.

Toxic symptoms were produced in two cases—Stomatitis in one, in which it was not possible to trace whether this was due to the effect of the injection, or to the effect of the disease. In a second case, there was a moderate tender swelling left at the seat of injection, but this disappeared after a few days.

All the cases were cured with satisfactory results, but I am unable to express my opinion on the efficacy of this salt, as few cases were treated this year. Mercury and Pot. iodide mixture was daily given in each case.

It is intended to give an extended trial of this drug in the next year.

#### CASE OF CONGENITAL DEFECT OF THE URETHRA BY C. F. SHELTON, M.D. (LOND.), MEDICAL OFFICER, ARUSHA.

The patient, a Masai child, aged four months, was admitted to hospital with the following history :—

The child was stated to have been quite normal when born. Shortly after birth the mother noticed that the scrotum was beginning to swell and that urine was being passed naturally only at irregular and increasing intervals. Pressure on the scrotal swelling caused urine to flow from the penis—with disappearance of the tumour. For the past month or two it had been increasingly difficult to squeeze out urine, and pressure had not been followed by complete subsidence of the scrotal swelling as formerly. On examination :—

The child was fat and in good condition. A large cystic swelling was found occupying the scrotum, which measured 4 by 3 inches. There was no communication with the abdomen through the inguinal canals, the testicles were to be felt in the posterior part of the scrotum, and the tumour was translucent to light. The glans and body of the penis were almost completely obliterated in the scrotal swelling (similar to the appearance met with in old-standing hydroceles). Pressure on the scrotum caused clear urine to flow from under the prepuce, but without complete disappearance of the tumour. With some difficulty I found the urethral orifice and passed a fine silver catheter. After passage of the instrument for about  $1\frac{1}{4}$  inches, urine began to flow, but I found it quite impossible to push the point of the catheter under the pubic arch into the bladder. After evacuation of the urine, the point of the catheter was felt in the perineum in contact with the posterior scrotal wall and between the testicles. The urine was quite normal.

The child was kept under observation in hospital for five days prior to operation. During this time it became increasingly difficult to empty the scrotum of urine by pressure, and for the last two days a catheter was passed twice daily.

*Operation on 13th June, 1923. Anæsthetic Chloroform administered on a Single Layer of Lint.*

Under anæsthesia a silver catheter was passed into the bladder with some difficulty, and a little clear urine drawn off. Catheter left in position and a longitudinal incision made through the median raphe of the scrotum. On cutting through the skin and integuments, I opened into a sacculus contained in the middle of the scrotum. The sides of the incision were held aside with Kocher's forceps and the cavity explored. A few small phosphatic concretions were found on the sac wall, which appeared to be lined with stratified epithelium; the testicles were enclosed each in their own tunica, *i.e.*, not free in the sacculus. On further inspection, I found a longitudinal defect in the floor of the membranous urethra,  $\frac{1}{4}$  inch in length by  $\frac{1}{8}$  to  $\frac{1}{16}$  inch in breadth and situated just behind the bulb, the above gap opening into the scrotal pouch. There was no sign of old trauma, no sign of any extravasation of urine outside the sac. I think this child had a congenital defect in the urethra which communicated with a pouch in the scrotum, also congenital in origin. As the child became older, this pouch gradually became more and more distended with urine. I believe the above abnormality to be a rare one.

I was proceeding to undercut and pare the edges of the gap with a view to suture, when the child suddenly collapsed. Artificial respiration, followed by cardiac massage (by way of a hasty L. Rectus Incision) was done, but with no success. I did not press the matter of a P.M. with the parents, but examination of heart, lungs and abdomen made previously to operation had shown no signs of disease.

*Note by Principal Medical Officer.*—From the works available in the library, I gather that the form of defect with pouch reported by Dr. Shelton has not been described except immediately behind the glans (White and Martens Genito Urinary Surgery, 11th Edition) so that, if there was no indication of hypospadias having existed and the external opening having become closed by some means, the case appears to be a most unusual one.—*J.B.D.*

SOME INTERESTING CASES REPORTED BY G. A. WILLIAMS, B.A. (LOND.), M.R.C.S. (ENGL.), L.R.C.P. (LOND.), MEDICAL OFFICER, BUKOBA.

*General Paralysis of the Insane in Natives.*

I had been given to understand, before I visited East Africa first in 1916, that General Paresis (or G.P.I.) was extremely rare, if not non-existent in the natives.

During my service with the King's African Rifles, I saw two cases, which I considered quite definite examples, but I had no opportunity of long observation of them.

At Bukoba I have seen three cases, two of which I consider undoubted examples, and one in which the man has been regarded as an Epileptic, but which I suspect to be G.P.I. I will describe one of them.

He was a man of thirty odd, and a native Chief, a sort of Sub-Sultan. Up to quite recently there had been nothing abnormal. A few months before I saw him, he had suddenly changed, and from being an intelligent man became silly and irresponsible, and after a seizure, had broken down altogether, and he was sent in to me at Bukoba.

When I saw him he walked with hesitation and a certain amount of Ataxia. In appearance he looked silly and childish and apprehensive, and his face had a greasy, smooth expressionless appearance. He had the typical lalling speech, dropped syllables, and floundered hopelessly over some test words. He wrote a very shaky hand, which tailed off into undecipherable characters after a few words, and, of the words he wrote, he dropped letters and syllables.

There was a history of Syphilis and I was also told that one of his sons, aged about ten, had had seizures recently. There was marked tremor of his facial muscles, especially about the mouth, and his tongue was also tremulous on protrusion. His eyes showed inequality and irregularity of outline of the pupils.

His knee jerks were much increased, on the right side almost to Clonus. He was given three injections of Neokharsivan (914), and fairly heavy doses of mercury, plus Pot. Iodide, and he gradually improved. After three months most of the symptoms improved, and he now has enjoyed a remission of four or five months.

Of the second case there is little to say, except that he improved a good deal under treatment while in hospital, but he came to see us again about a month ago and seems to be going back.

The third, the doubtful one, is interesting, in as much as a son of his, a school boy in his early teens, had a series of seizures while at school in Bukoba, and I had him under direct observation for a few days: not knowing the father's history at the time, I suspected a case of juvenile G.P.I., and later enquiries as to his family history revealed the fact that the father was regarded as an epileptic. I have seen his father several times, and I am inclined to favour the diagnosis of General Paresis rather than Epilepsy.

These cases seem to me of special interest now, seeing that so much is being made at present of the reported cure of G.P.I. by inducing Malaria.

It makes one ask, does Malaria account for the rarity of G.P.I. in East Africa? Also, it makes one regret that the seeming ease with which the super-imposed Malaria can be cured, has not been attained locally.

#### *Ascaris Lumbricoides in an Inguinal Abscess.*

A native man in the prime of life was brought to hospital on 23rd October, 1923. He gave a history of having been ill for about ten days. His illness began with severe pain in the lower epigastric region. From there it spread down to the lower abdomen, and finally was confined to the right side only. The pains became severe, with exacerbations, and, as he described it, he was often doubled up with pain. He said he had had fever, had vomited several times, and had been confined to bed for the past four days and was constipated the whole time. At this time he noticed a swelling just above his right inguinal region, and which became very tender, and gradually increased till about the size and shape of a goose's egg and lying with its long axis parallel to the inguinal fold. He had passed a small constipated stool a day or two before being brought to hospital. Till then, with the exception of constipation, he had always been healthy. On examination, an abscess of sorts was diagnosed and it was incised under chloroform. Characteristically stinking *b. coli communis* pus was evacuated to the extent of about 12 oz. The abscess cavity was not explored, and drainage was allowed for. Excellent progress was made, the man soon improved in health, and the wound healed up rapidly, except for one spot, which seemed very obstinate, and from this a thin watery discharge continued to discharge. On the 4th November, 1923, the dresser thought he saw something moving inside this hole, and he grabbed it with a forceps and withdrew a fine example of *Ascaris Lumbricoides* about seven inches long. After this the sinus healed rapidly and the man was discharged cured. I suggest the diagnosis of a retroperitoneal appendix abscess, which had tracked down to this region.

#### *Sarcoma of the Lower Arm in a Native Woman.*

1. A young native woman of about eighteen came to hospital in October, 1922, with a large tumour on the flexor aspect of the left lower arm. It extended from the wrist up to the elbow, the skin was broken down and there was a stinking discharge.

2. I diagnosed a Sarcoma, and advised amputation of the arm, but her husband would not consent to it on any account, although I assured him it would return again if removed.

3. So against my better judgment I removed the growth. It was an extremely difficult dissection, and I could not quite make out the structures which were involved. It was adherent below to the anterior annular ligament and above to the bicipital fascia and part of the superficial flexor muscles lay over it.

4. The wound healed fairly well with an ugly scar, and she had good use of her hand, and both she and her husband were very glad they had refused operation.

5. This year, however, in the month of June, she returned with a fungating and stinking mass at the site of the previous growth, and was quite ready for operation.

6. I amputated at the junction of the middle and lower thirds of the humerus and the wound healed by first intention.

7. The patient, who was in a very poor condition on admission, rapidly put on weight, and left hospital in excellent condition, and has since been to visit us several times, and we have heard of no further developments.

8. She had no involvement of axillary glands.

9. I propose sending the tumour and the amputated arm to Dar-es-Salaam.

*Two Cases of Purpura—Simplex and Hæmorrhagica.*

*Case No. 1.—Purpura Simplex.*

This occurred in a young native woman of about seventeen years. She came to hospital with blood-filled bullæ scattered sparingly all over her body, and she complained of some hæmorrhage from the gums, but she had no bullæ in the mouth.

She had scratched one or two of the bullæ so as to make them bleed and they had bled very freely.

She did not feel ill in any way, and came only because of the hæmorrhage.

I made a thorough overhaul of her, but failed to find any signs of disease.

I gave her a mixture containing Iron, Strychnine, and Arsenic, and all the symptoms disappeared rapidly.

*Case No. 2.—Purpura hæmorrhagica.*

Just after the above patient had ceased to attend, there came a young native man about twenty-two perhaps, with blood-filled bullæ scattered fairly plentifully all over his body, in his mouth, on tongue, and buccal mucous membranes, and giving a history, also, of having passed a fair quantity of blood per rectum. He was admitted to hospital and remained over two months, during which period he had several severe bleedings from mouth, nose and rectum.

No other signs of disease were discovered by us, and his history was negative. He came from a different part of the district from the other patient and knew nothing of her. He was treated with Iron, Arsenic, Strychnine, and full doses of Ergot were given at the time of the bleeding. No other symptoms appeared.

He became weak and anæmic, but was eventually discharged convalescent.

CASE OF MULTIPLE TUMOURS OF BONE, BY JAMES H. THOMSON, M.D. (ABERD.),  
D.T.M., MEDICAL OFFICER, MWANZA.

Patient, a young native woman, was admitted into hospital last November. As will be seen in the accompanying photographs, she had two large tumours on her back. Those tumours were attached to the anterior surface of the lower end of the scapula on each side. At the spine there was distinct demarcation between the two. They were of very hard, bony consistency, smooth, and not attached except as above. The skin was freely moveable, and one could get a hand underneath, and lift them up. At the lower end and lower inner surface of the tumour on the right, which was the larger one, could be felt two hard irregular lumps, about the size of a closed fist, and more of the consistency of cartilage than of bone. On both sides the tumours were encroaching on the front of the chest, the tumour on the right having its edge, thin, free, hard, and slightly nodular, right under the nipple line.

Besides those two tumours, both patellæ were very much increased in size, they felt just like ordinary patellæ, with the exception of their sizes. To the lower and outer surface of the shaft of the left humerus, was attached another hard, bony growth, not interfering with the joint. It was difficult to get a history, but these growths apparently started in childhood, gradually increasing in size. The only thing she complained of was the weight of the tumours on her back. Since coming here I have seen one case in a male native of a similar growth at the elbow.

CASE OF FACIAL WOUND, BY J. M. SEMPLE, B. CH., M.B. (DUB.), B.A.O. AND L.M. (ROT.),  
MEDICAL OFFICER IN CHARGE, SEWA HADJI HOSPITAL, DAR-ES-SALAAM.

*History.*—A male child was brought to hospital having had his face wounded with an axe or panga three or four days previously.

*Examination.*—The child was about three years old and well nourished. The wound was on the left side and was in a very septic state. It was about three inches long and about one and a half inches wide at the widest part, and extended from a point about half an inch above the posterior end of the zygomatic arch downwards and forwards to the malar eminence, and thence downwards and backwards to a point over the root of the last molar tooth. The lateral aspect of the zygomatic bone was exposed throughout its whole length and below this the masseter muscle, the parotid duct (which was severed), and the tissues of the cheek, with the exception of the buccal mucus membrane, were involved. The facial and temporal arteries were found uninjured in the flap of tissues lifted up by the weapon which caused the wound.

*Treatment.*—This was at first confined to cleaning the wound and promoting a sufficiently healthy condition of the tissues to enable an operation to be performed for the closure of the wound and restoration of the facial contour.

*Operation.*—General anæsthesia with chloroform was used, but on account of the position of the wound, the question of asepsis was somewhat difficult. This difficulty was, however, countered by suspending a sterile towel from the electric light fixture by means of two strings ending in hooks, the lower edge of the towel being clipped to the face by means of two or three small sterile towel clips. (The small punctures made by these clips were afterwards touched with BIPP and caused no trouble).

The sides of the wound were then pared and shaped with a sharp scalpel and the deeper tissues freed from the underlying bone where they had become adherent.

The cut ends of the parotid duct were partially approximated by means of a loop of fine catgut passed through a wall of each, a round needle was then passed into the lumen of each portion and the cut ends joined together by tying the loop of catgut. Two more fine sutures were then passed at equal distances round the walls of the duct, and the needle removed from the lumen of the duct by pushing the point through the wall.

Little difficulty was experienced in drawing the shaped edges of the wound together by means of three buried catgut sutures and skin sutures of fine silk. The line of sutures was wiped with BIPP.

Healing was by first intention and only a thin linear scar remained to mark the site of the wound.

The child has been seen on one or two occasions since his discharge from hospital, and except for a very slight wrinkling at the outer angle of the eye (similar in appearance to "crow's feet"), there are no signs of contraction due to scar tissue.

Photographs were taken, but, unfortunately, were failures.

Sketches are attached, but give but a poor idea of the size and extent of the wound.

CASE OF CARCINOMA OF THE PYLORUS IN AN AFRICAN NATIVE, BY C. F. SHELTON, M.D.  
(LOND.), MEDICAL OFFICER, ARUSHA.

Deceased was a male Wa-Arusha native, aged about twenty-five. History of pain and indigestion for about two years?

When first seen had a definite moveable mass in the epigastrium. Operation showed an extensive inoperable growth of lesser curvature of stomach extending on to pylorus and a few secondary nodules on the visceral peritoneum. P.M. ten weeks later showed whole lesser curvature massively infiltrated with what appears to be a new growth. No secondary nodules in liver. Secy. nodules on peritoneum and great omentum.

Specimens from the stomach wall and from a secondary nodule in the great omentum were sent to the Bacteriological Laboratory, Dar-es-Salaam, in December, for histological examination. Report not available yet. (This specimen, unfortunately, was not received).

LIVER ABSCESS IN A NATIVE OF UGANDA: OPERATION, RECOVERY, BY C. F. SHELTON, M.D.  
(LOND.), M.O., ARUSHA.

Patient, a K.A.R. askari, a native of Uganda and aged about twenty-six, was admitted to hospital on 8th March, 1923, complaining of severe pain in the right side over the base of the lung, worse on deep inspiration. T.  $100^{\circ}$ ; coarse friction over right base behind, below level of the seventh rib, and in the axilla. Spleen and liver not enlarged to ordinary clinical examination.

*Previous History.*—Had always enjoyed good health except for an occasional attack of "fever." No history in any way suggestive of Dysentery.

On 15th March, 1923, I found definite tenderness over the liver, most marked on firm percussion over the eighth and ninth intercostal spaces in the mid-axillary line. Patient also stated that the pain in the side had been much worse for the last two or three days. Liver edge not felt per abdomen, but there was definite tenderness and rigidity over the right hypochondrium.

Leucocytes 17,000 per c.mm. Diagnosis of Amœbic Hepatitis.

Temperature since admission had been running a very irregular course, varying from  $97.2^{\circ}$  F. to  $101^{\circ}$  F., and always higher in the evening than in the morning.

Between 15th March, 1923, and 21st April, 1923, patient received two courses of emetine—given hypodermically, in gr. 1 doses daily—one of twelve grains (between 15th March, 1923, and 26th March, 1923) and one of ten grains (between 12th April, 1923, and 21st April, 1923). Each time the symptoms improved slightly during the course, only to return as soon as the drug was stopped. At this time the patient absolutely refused to have an anæsthetic for the purpose of liver puncture.

On 30th April, 1923, the man had a very severe attack of pain in the right side, accompanied by acute tenderness over the liver, vomiting, and rigidity over the whole upper part of the abdomen. The pulse was 100 to 110, of good volume and tension.

Consent to operation was now given, but, at the very last moment, the patient refused (mainly, I think, due to the fact that the pain was temporarily much improved after a full injection of morphia). A third course of emetine was then given; patient receiving 10 grains between 30th March, 1923, and 9th April, 1923. This time the signs and symptoms cleared up with surprising rapidity, and patient was discharged to light duty on 13th May, 1923, as he "felt quite well now."

*Note on discharge.*—"General condition, fair; pulse 80, at rest; no signs of enlargement of liver except for slight diminution of resonance or percussion and breath sounds over "right base behind."

Re-admitted on 7th July, 1923, for return of his old symptoms. Stated he had been fairly well in the interval, except for slight attacks of pain over the liver and for shortness of breath on exertion. On examination he was now found to have definite enlargement of the liver in both an upward and downward direction. Operation still refused, so a further 10 grain course of emetine was administered, but without any good effect on the signs and symptoms. The temperature at this time varied from  $98.2^{\circ}$  F. to  $102.4^{\circ}$  F.

Between the date of re-admission and the 2nd October, 1923, the liver steadily increased in size, while the general condition as steadily deteriorated.

Operation was consented to on 2nd October, 1923. At this time the liver was enormously enlarged. Per abdomen, its edge extended down to within 1 inch of the umbilicus, the whole of the right side of the chest was bulging and without movement on respiration. Behind, there was absolute dullness, together with loss of breath sounds, vocal fremitus and vocal resonance below the level of the sixth rib, and, in the axilla, the same signs were present below the level of the fifth rib. The cardiac impulse was displaced  $1\frac{1}{2}$  inches outside the nipple line, and the man looked very ill and anæmic.

*Operation on 2nd October, 1923.*—The abdominal surface of the liver was exposed through a longitudinal right rectus incision. On puncturing the liver with a small trocar, pus was struck at a distance of about 3 inches from the surface; the trocar having been pushed in an upward and backward direction. After the abscess had been partly emptied

the track of the puncture was enlarged with forceps and a large size drainage tube inserted into the cavity. Enlargement of the track and insertion of the tube led to very free bleeding from the congested liver tissue. At the time I noticed that pus was not flowing very freely from the tube, and felt rather uneasy as to whether the latter had been properly introduced into the bottom of the abscess cavity. The general condition of the patient was now so bad that I did not like to explore any further, and accordingly completed the operation as quickly as possible. Thirty-five ozs. of typical amœbic abscess pus were evacuated at the operation.

N.B.—I was compelled to operate by the open method as at that time I had no suitable aspirating instruments available.

A further course of 10 grains of Emetine was now given. For a time the general condition improved, although drainage from the first was unsatisfactory. At the end of five days nothing was coming out of the drainage tube, so this was removed. After a short improvement the symptoms began to return, and the liver to show signs of enlarging once more.

On the 7th November, 1923, after repeated persuasion, consent was at last obtained to a second operation. The liver was now enlarged down to within 2 inches of the umbilicus; behind, the base of the lung was absolutely dull from the angle of the scapula downwards.

A small incision was made through the old scar over the right rectus, and the liver explored by Manson's method. A total amount of 40 ozs. of thick pus was evacuated at the operation, Manson's drainage tube being left in the abscess cavity.

This time, drainage was free and in every way satisfactory, the general condition improved steadily, and the discharge gradually diminished. A final course of 10 grains of Emetine was given.

Ten days after operation I noticed that there was free fluid in the abdomen. This increased for a time, and then began to diminish—never at any time being sufficient to call for paracentesis.

*Condition at the present time (10th January, 1924).*—General condition good. The scar on the abdomen is healed, but a small ventral hernia is present. Liver edge not palpable per abdomen. Slight impairment of percussion note, vocal fremitus and vocal resonance over the right base, below the angle of the scapular. Breath sounds well heard over the base of the right lung. Cardiac impulse in fifth space, just internal to the nipple line. There is still a very small amount of free fluid in the abdomen.

In looking back on this case I should like to raise the following points:—

1. The reason for the inefficacy of the first two courses of Emetine. Was pus already present in the liver at this time?
2. The explanation of the attack of pain on the 30th April, 1923, with the accompanying rigidity of the upper part of the abdomen. At the time I thought that an abscess of the liver was leaking into the abdominal cavity and causing the acute symptoms.
3. The reason for the apparent (though temporary) efficacy of the third course of Emetine.
4. The explanation of the failure of the first operation, *i.e.*, was this due to bad technique on my part in failing to drain the abscess cavity properly or was the abscess bilocular, and consequently one loculus remained untouched.
5. The very large amount of Emetine which was given without any recognisable toxic symptoms.

#### SPLENIC ENLARGEMENT IN ADULT NATIVES.

REPORT BY DR. J. G. McNAUGHTON, M.D., M.R.C.P. (EDIN.), ACTING SENIOR MEDICAL OFFICER, TABORA.

I have examined the following numbers of casual natives, picked at random, with the undermentioned results:—

Persons examined	.. .. .	Men, 2,597.	Women, 158.
Spleen not enlarged	.. .. .	1,643 (% 63.27)	96 (% 60.76)
Spleen palpable	.. .. .	619	57
Spleen 1 inch below costal margin	.. .. .	244	4
Spleen 2 inches below costal margin	.. .. .	84	0
Spleen at or below umbilicus	.. .. .	7	1

## TANGANYIKA TERRITORY.

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### VII. REPORT OF THE DAR-ES-SALAAM LABORATORY, FOR THE YEAR 1923,

By G. G. BUTLER, B.A., M.D., B.C., etc.

#### A. INTRODUCTORY.

This report covers the period January to December, 1923, which is the third completed year's work of the Laboratory. This period has been sorely broken up with the result that much of the work has become disjointed and routine work only been possible.

1. *Staff*.—Dr. Butler was in charge of the Laboratory for the first six months and then was succeeded by Dr. Haworth for the latter six months, and this report is written by the former under the difficulty of not having been in touch with the Laboratory for some time. Mr. Hammond, Laboratory Assistant, proceeded on leave in November and was relieved by Mr. Irvine, a newly arrived Sub-Assistant Surgeon who has shown considerable aptitude to the work and will be able to take on the duties of Laboratory Assistant at any time should shortages of staff occur.

Mr. Hammond's work with the calf lymph production is an important and valuable part of our routine and that there has been no hitch in its manufacture is largely due to his methodical work.

The native staff has remained the same as in the previous years, and they could be replaced only with considerable difficulty.

2. *Buildings*.—These remain as previously, though minor repairs have been made.

Plans for an extension for the building have been submitted. Extension is necessary owing to the variety of work that has to be done and if we obtain the Assistant Bacteriologist already sanctioned, extra room will become still more imperative.

3. *Equipment*.—The usual minor additions have been made during the year. The electrically driven lymph-grinding machine has worked satisfactorily during the year and has saved much time.

Ice is bought locally and costs roughly £100 a year. An electrically worked refrigerator, if applicable to the tropics, will be asked for during the coming year, and though the initial outlay will be large, there should be considerable saving eventually, and advantages of fairly dry storage will be obtained. The importance of an efficient refrigerator is necessary, owing to the stock of calf lymph that has to be kept on hand.

4. *Library*.—Periodicals are received as in previous years and the following books added to the library from the library attached to the Principal Medical Officer's office. :—

Quantitative Analysis .. ..	Clowes and Coleman.
Food and Drugs .. ..	Parry.
Public Health Laboratory Work ..	Kenwood.

5. *Experimental Animals* :—

(a) *Monkeys*.—These are required to keep up the virulence of our calf lymph and are not kept for long periods.

(b) *Guinea Pigs*.—These do well, but scarcely have bred fast enough to keep up our requirements in Complement, owing to the great expanse in Complement Fixation Work that has become necessary.

6. *Revenue*.—Calf lymph to the value of £320 has been sold to the Zanzibar Government from whom we have a request for supplies to be delivered monthly.

#### B. GENERAL EXAMINATIONS.

##### I. *Blood* :—

(1) *Blood Films*.—This is a routine matter and is carried out by the same technique as in previous years.

A total of 3,169 slides have been received, this number is more than twice the total received during 1922.

The source of these slides is as follows :—

European Hosp.	Native Hosp.	Other Med. Officers	Out-Stations.
680	2,379	60	40

Excluding the films that were impossible to examine for some reason there remain 3,128 which were reported upon as detailed below :—

(a) *Blood Parasites in Europeans*.—A total of 428 were examined with the following results :—

Sub-tertian Malaria	...	...	...	...	...	107
Benign Tertian Malaria	...	...	...	...	...	2
Crescents	...	...	...	...	...	6
Spirillum duttoni	...	...	...	...	...	7
Microfilaria	...	...	...	...	...	1
Negative	...	...	...	...	...	305

(b) *Blood Parasites in Asiatics*.—A total of 672 were examined with the following results :—

Sub-tertian Malaria	...	...	...	...	...	201
Benign Tertian	...	...	...	...	...	22
Crescents	...	...	...	...	...	3
Spirillum duttoni	...	...	...	...	...	10
Microfilaria	...	...	...	...	...	4
Negative	...	...	...	...	...	432

(c) *Blood Parasites in Natives*.—These figures include those of the King's African Rifles.

A total of 2,038 slides were examined with the following results :—

Sub-tertian Malaria	...	...	...	...	...	412
Benign Tertian Malaria	...	...	...	...	...	15
Crescents	...	...	...	...	...	16
Spirillum duttoni	...	...	...	...	...	26
Microfilaria	...	...	...	...	...	62
Negative	...	...	...	...	...	1,487

Comparing these results as percentages, we find the type of Malaria distributed as follows, in approximate figures :—

	EUROPEANS.	ASIATICS.	NATIVES.
Sub-tertian	93.4 %	88.9 %	93 %
Benign Tertian	1.4 %	9.7 %	3.3 %
Crescents	5.2 %	1.3 %	3.6 %

The highest percentage incidence of Crescents appears in Europeans and the highest monthly incidence which occurs in June follows shortly after the highest monthly occurrence of Malaria.

Further observations on Malaria will be found under the heading “ Malaria and Meteorology.”

(d) *Relapsing Fever*.—There is very little to note under this heading : there has been an increase again during the year over that of 1921 and 1922 : 53 cases having been recorded, of which, however, only 7 occurred amongst Europeans. As in 1922, cases amongst the local population have occurred,

(e) *Microfilaria*.—No special investigation has been made for these parasites. A total of 69 have been met with in the routine examination of blood films which gives a percentage of 2.2 per cent., including all nationalities, though the frequency of infection amongst Europeans is very low.

Sheathed and unsheathed varieties occur, though the latter appear to have only been noted during the rainy season from April to June.

There is a sharp rise in the findings during April, when the rainfall of the year was at its height.

These findings have been made in the day blood of patients, and no attempt yet has been made to estimate the infection in night bloods.

I am unable yet to state with certainty the variety of microfilaria that are met with in Dar-es-Salaam.

(f) *Differential Leucocyte Counts*.—There is very little demand for this investigation and only thirty-two Counts have been made, all on Europeans.

Nothing of particular interest was revealed: normal in eleven; polymorph leucocytosis in fifteen, which includes three cases in the later stages of Blackwater Fever.

Five cases showed a large mononuclear increase, and one a well-marked Eosinophilia.

One case gave a typical picture of pernicious anæmia.

(g) *Blood Parasites of Animals*.—Owing to the outbreak of Trypanosomiasis in the Mwanza area, it was thought advisable that a series of animals should be examined for similar parasites, and a batch of films was obtained through the Game Department. Owing to the difficulties of obtaining films in the field by unpractised hands and often due to the fact that the animal may have been dead some time, the results have not been too satisfactory. Probably the only satisfactory method would be for the Protozoologist to do the hunting and trapping himself.

The following animals were examined:—

Monkey .. ..	Cercopithecus pygerythrus ..	One specimen.
Baboon .. ..	Papio langheldi .. ..	Three specimens.
Lemur .. ..	Galago sp. .. ..	One specimen.
Bat .. ..	Chærophon .. ..	Seven specimens.
" .. ..	Nycteris sp. .. ..	Six specimens.
Fox .. ..	Otocyon virgatus .. ..	One specimen.
Civet .. ..	Viverra civetta .. ..	Two specimens.
Mongoose .. ..	Herpestes .. ..	" "
" .. ..	Helogale .. ..	" "
Serval .. ..	Felis capensis .. ..	" "
Topi .. ..	Damaliscus korrigum .. ..	" "
Dik-Dik .. ..	Madoqua .. ..	One specimen.
Impalla .. ..	Æpyceros melampus .. ..	" "
Roan .. ..	Hippotragus equinus .. ..	Three specimens.
Bushbuck .. ..	Tragelephus scriptus .. ..	One specimen.
Warthog .. ..	Phacochærus æthiopicus .. ..	Four specimens.
Zebra .. ..	Equus quagga .. ..	One specimen.
Hyrax .. ..	Procavia brucei .. ..	Four specimens.
" .. ..	Procavia matschei .. ..	Eleven specimens.
Rat .. ..	Taterona .. ..	Two specimens.
" .. ..	Epimys .. ..	Five specimens.
Hare .. ..	Lepus sp. .. ..	One specimen.
Porcupine .. ..	Hystrix sp. .. ..	Four specimens.
Lizard .. ..	Agama sp. .. ..	Two specimens.
" .. ..	Varamus niloticus .. ..	One specimen.

The majority of the slides were negative, but the following parasites were found:—

Monkey.—Markedly pigmented Malaria like parasite which is commonly met with in these animals.

Baboon.—One showed parasites similar to those just mentioned.

Bat Nycteris.—Four of the specimens showed Trypanosomes which varied considerably in form and had no free flagellum.

Fox.—This animal showed unsheathed microfilaria of small size.

Roan.—One of the specimens showed microfilaria of unsheathed type.

Lizard. Agama.—One specimen showed unsheathed microfilaria.

(2) *Agglutinations*.—There has not been a great demand for these, probably depending on the relative infrequency of the Enteric group.

A total of thirty were performed, seventeen in Europeans and the remainder divided between the Asiatic and Native patients. Out of this total, twelve gave what may be considered as positive results.

Typhoid: Nine positive cases, none of which were found amongst natives.

Paratyphoid A.: One positive case only in a native.

Paratyphoid B.: One positive case was found in a European.

Paratyphoid C.: No cases were found.

Malta Fever: One positive case in a native from the Arusha district. This diagnosis should be described rather more fully for, owing to the culture of *M. melitensis* having died out, the agglutination with *B. abortus* was performed and an agglutination at 1 in 320, with negative controls, suggested the diagnosis which I understand was clinched clinically.

(3) *Blood Cultures*.—The usual Ox bile medium has been employed as the clinical diagnosis suggested the Enteric group.

A total of seventeen were performed with four positive results—all *Bacillus typhosus* of standard type. These positive cases occurred one each amongst Asiatic and Natives and two amongst Europeans.

(4) *Wasserman Re-actions and Flocculation Tests*.—There has been a great increase in this work, largely owing to the impetus given to the treatment of Syphilis and Yaws by Bismuth Sodium Potassium Tartrate in natives. The full technique recommended by the Medical Research Council is employed.

Europeans.—Twenty-nine sera were examined with seven positive results = approximately 24 per cent.

Asiatic.—Only twelve sera were examined with a total of six positive = 50 per cent.

Natives.—One hundred and seventy-six sera were examined with 124 definitely positive results = 70 per cent.

As the first two groups are usually examined to confirm or clinch a diagnosis already suspected, the percentage does not appear high.

In the native group, as the examinations have quite often been performed as a routine measure and the individuals have not necessarily had obvious signs and the percentage of 70 per cent. suggests that very few of the population frequenting the hospital appear to have escaped Yaws or Syphilis, though I think the former is by far the main factor.

*Flocculation Tests*.—A considerable number of Kahn tests have been performed and they will be examined in more detail under special investigations. The main results obtained are as follows:—

Europeans.—Thirty-two sera have been examined with thirteen positive results = 40.6 per cent.

Asiatics.—Twenty-one only have been examined and yielded ten positive results = 48 per cent. approximately.

Natives.—Two hundred and seventy-four sera gave one hundred and ninety-three positives = 70 per cent.

The latter two groups have given suggestively close results with the Wasserman tests.

## B. II. EXAMINATION OF FÆCES.

Four hundred and fifty-three separate examinations have been made, but a certain number of patients have been found with more than one infection, so that the figures do not quite correspond when percentages are given. Three hundred and ninety-eight have been examined microscopically, and fifty bacteriologically.

(a) *Microscopical*.—Naturally this forms the biggest group.

Europeans.—Seventy-four examinations were made and fifty-three of these revealed nothing to account for any abnormal condition.

Entamœba histolytica or their cysts were found on ten occasions, that is, 13.5 per cent.

The remaining eleven cases showed flagellates in seven and the following ova. Ankylostome in one, Ascaris in one, and Tænia in two, one of the latter occurring in an infant a few months old.

Asiatics.—Only thirteen were examined microscopically and all yielded negative results.

Natives.—Three hundred and eleven patients were examined with the following results :—

Flagellates	..	..	..	..	..	23 = 7.4 %
Entamœba Histolytica	..	..	..	..	..	11 = 3.5 %
Ascaris	..	..	..	..	..	32 = 10.3 %
Ankylostomes	..	..	..	..	..	136 = 43.7 %
Tænia..	..	..	..	..	..	17 = 5.4 %
Bilharzia	..	..	..	..	..	3 = .9 %

The figures for ankylostomes are of interest in that a fairly high figure has been obtained on a single film examination, suggesting that with a concentration method probably double that number are infected. The small proportion of cases of Ankylostomiasis that are met with is very suggestive when taken into conjunction with these ankylostome figures.

The Dysentery-like stool of a young female gorilla was examined and showed many amœba of the histolytica type and eventually killed the animal in spite of Emetin treatment, an interesting fact in view of the similar results obtained in experiment Dysentery of kittens.

(b) *Bacteriological Examinations* of Fæces have been carried out on fifty-five cases, including all nationalities, and they may be considered together.

The cases divide themselves into groups as follows :—

Clinically Bacillary Dysentery. Thirty-six fall into this group, of which ten yielded the Flexner-Y type of Dysentery organism, that is, approximately 27 per cent.

This group, when plotted out into monthly incidence, follows almost exactly the rain curve, during which time the fly population is also markedly increased. A similar comparison made with the amœbic Dysentery cases shows no such parallel, the sixteen cases being spread over nine months of the year.

The remaining samples were examined for Enteric group in nine instances and all proved negative.

Ten cases of Diarrhœa were examined and in four, Morgans Bacillus No. 1 was recovered—these latter being obtained from an outbreak of Diarrhœa in the Morogoro Gaol.

### B. III. *Urine Examinations* :—

(a) General examinations have been made on one hundred and five specimens, with results indicating nothing abnormal in fifty-seven cases. Six cases showed Oxyhæmoglobin, four in Europeans and two in Asiatics, but no case occurred amongst natives.

Signs suggestive of Nephritis were found in nine individuals, but none of these were amongst natives.

One case of Vesical Calculus was met with.

An interesting case of Acetonuria was found in an emaciated European lady without any indication as to the cause, this cleared up at once on a diet increase.

The remaining cases were of no particular interest. Urinary Bilharzia, of course, is very common amongst natives.

(b) Bacteriological examinations of urine have not been numerous, only six samples have been submitted. Three were examined for the Enteric group with negative results, one was specially examined for the coli group and similarly proved negative, as did the final case which was examined for Tubercle bacilli.

B. IV. *Pus* :—

This examination usually resolves itself into an examination for the *Gonococcus* in urethral pus.

Seventeen Europeans were examined with eight positive results. Twenty-five Asiatics yielded nine positive slides and thirty natives yielded thirteen positive cases

One sample of pus from a periuterine abscess grew *Staphyococcus aureus*.

B. V. *Sputum* :—

The routine examination for Tubercle bacilli is the only procedure under this heading. Two hundred and six specimens were received, twenty-nine amongst Europeans, giving four positive cases. Forty-two samples from Asiatics gave three positive only, while out of one hundred and thirty-five natives there were twenty-nine positive, which is over 27 per cent. of the cases examined.

B. VI. *Scrapings from Ulcers and Sores*.

Only twenty-one samples were received, six from Europeans for search for the *Spironema*, and all proved negative.

The fifteen cases from natives were for examination for Leprosy and also proved negative in all except one case. An interesting series of scrapings from cases of rhinopharyngitis met with on the Anglo-Belgian Boundary Commission were sent down to be examined for Leishmann-Donovan bodies, and all proved negative and the cases most probably were Yaws.

B. VII. *Miscellaneous*.

(a) *Exudates*.—The Cerebrospinal fluid from an European case of *Spirillum* fever was examined on several occasions and no evidence of *Spirilla* was found.

The Cerebrospinal fluid of four native patients was submitted for examinations, the *Meningococcus* and *Pneumococcus* were found in one instance each, and the remaining two proved negative.

Pleural and Peritoneal exudates were examined on one occasion each for Tubercle bacilli and proved negative. Prostatic exudate was examined on three occasions and also proved negative.

(b) *Throat Examinations*.—Swabs were submitted on five occasions; on two occasions for examination of Diphtheria and were negative, the other three proved to be infections with Vincent's organisms.

(c) *Nasal Examinations*.—These were made on twenty-one individuals suspected as lepers—it proved negative in nineteen and positive in two.

(d) *Skin and Hair Examinations*.—Seven individuals were examined for *Tinea tonsurans*, the one European proved negative while all six native children showed the presence of *microsporon audouini*.

(e) *Entomological*.—A few specimens of ticks were sent in for identification, and nearly all have proved to be *Ornithodoros moubata* and in no case have they been found infected.

Samples of *Simulium*, *Glossina morsitans* were sent down from the Anglo-Belgian Boundary Commission for identification.

A series of wild *Culex* collected from the same source were dissected and examined for *Filaria*, but all proved negative.

Some specimens of fleas proved to be *Ctenocephalus felis*.

(f) *Calculi*.—The urinary and biliary stones found in a cow were examined and found to be chiefly calcium carbonates.

## C. CHEMICAL EXAMINATIONS.

(a) *Milk Analysis*.

I. *Tinned Milks*.—Twelve samples of tinned milk were examined as to fat content: eleven of these were condensed milks and their fat content varied from 6.6 per cent. to 10.8 per cent., all except two passing the Government standard of 9 per cent.

One sample of natural tinned milk gave 3 per cent. fat.

II. *Natural Milks*.—Owing to the constant suspicion of the addition of water to the milk sold in the township, an increasing number of examinations have been made.

Guaranteed samples of goats' and cows' milk were obtained for control purposes and the average fat content has proved to be cows 4.63 per cent., goats 1.8 per cent., this was during August and has been higher during other months.

It is anticipated that there will be difficulty in the detection of abstractions of fat from additions of goats' milk rather than additions of water. Additions of water, as a rule, are so carelessly done that rapid detection is possible to all—in one case at least 50 per cent. added water was found.

Out of fourteen samples examined, six have proved to be unadulterated, six adulterated with water and two either had the fat abstracted or there had been addition of goats' milk.

(b) *Salt Deposits*.

Three samples were submitted and two proved to be 90 per cent. sodium chloride, while the third showed 80 per cent. of a mixture of Sodium and Potassium Carbonates.

(c) *Alcohol*.

An interesting sample of Banana spirit was sent in for estimation of alcohol and proved to contain nearly 23 per cent. of absolute alcohol.

#### D. MEDICOLEGAL.

(a) *Poisons*.—Owing to the general belief amongst natives that practically no death is natural, this branch of work is likely to increase and is very frequently a futile search, substances being assumed to be poisonous in order to explain the death.

The following cases have occurred :—

*Feigned Suicides*.—A bottle containing some whisky and a small packet of silver nitrate were left beside clothing on the seashore. No poisonous material was found in the whisky.

*Abortifacients*.—One sample of Bark examined revealed nothing that could be detected of this nature.

*Murder*.

(a) A vegetable powder given with food—no evidence of poison could be found.

(b) Stomach and contents of an alleged violent death showed no evidence of any poison.

(c) Stomach and contents of another such case also proved negative.

(d) Stomach and contents and the liver, together with some roots and pods were received and nothing poisonous could be detected in any of the specimens.

(e) A case of tobacco poisoning. This case seems to have been definitely proved.

The decoction showed the presence of tobacco and nicotine and apparently had been administered by mouth and per rectum. The stomach and intestine contents showed the presence of nicotine, while the liver and kidney proved negative.

(b) *Rape Cases*.—Two garments were examined for blood and spermatozoa and proved negative. Five specimens of vaginal discharge were examined for spermatozoa, and all proved negative, but gonococci were detected in two.

(c) *Weapons*.—Only one weapon in the form of a knife was sent for examination, and the alleged blood marks proved to be rust only.

(d) *Detection of Witches*.—Two samples of fluid with the alleged power to detect persons guilty of witchcraft were examined and appeared to be plain water.

#### E. WATER ANALYSIS.

(a) *Chemical Analysis*.—Twenty-two samples have been received and reported on. The majority naturally came from Dar-es-Salaam, the only out-stations sending samples have been one each from Lindi, Lushoto and Dodoma. The type of the waters examined were as follows and their result in general terms :—

Soda water, 1. Contaminated.

Wells water, 8. Four were unfit for domestic purposes, while the other four were suitable.

E. WATER ANALYSIS—*continued.*

Springs, 4. Three of which would make excellent supplies, the best of these came from Lushoto.

Mains, 5. All of these were passable. A large quantity of nitrites in one case was traceable to the iron piping. One sample was of great interest, owing to the chlorophyl containing organism which developed in the high level water tanks at Dar-es-Salaam and invaded the mains until the tanks were closed to sunlight.

Rain Water Tank, 1. One attached to Government House was found to be grossly contaminated and was emptied.

Bore holes, 3. Two samples from Dar-es-Salaam were good, but the third from Dodoma was quite unfit for consumption.

(b) *Bacteriological Examinations.*—Twelve samples were submitted; eight local samples, two from Dodoma and one each from Morogoro and Lushoto.

The results are tabulated as follows :—

Rainwater Tank, 1. This was from the same source as quoted above and was found to be grossly contaminated.

Soda waters, 5. The four supplied from local sources were good, but the sample from Morogoro was unfit for consumption.

Wells, 3. All three were from local sources and two were found to be contaminated.

Spring, 1. A sample from Lushoto which appeared to be good.

Water reservoirs, 2. Both of these were from Dodoma and were examined for *B. typhosus* group of organisms and found to be negative.

## F. RAT EXAMINATIONS.

The daily routine has been carried out as for previous years. A total of 10,305 were received, 10,170 being classified as *mus rattus* and includes a certain number of *mus alexandrinus*: the remainder were *mus decumanus*.

A ten per cent. selection of the rats are examined by smears from the spleen and negative results for *B. pestis* have been obtained. A difficulty has arisen owing to the replacing of wire traps with the break-back variety resulting in many of the rodents arriving in a putrefactive condition and impossible to examine.

## G.—METEOROLOGY.

(a) *Rainfall.*

	Total in Inches.	No. of days on which Rain fell.	Maximum on any one day Inches.
January .. ..	1.30	7	.1
February .. ..	.98	10	.22
March .. ..	1.91	11	1.02
April .. ..	9.54	18	2.148
May .. ..	2.66	8	1.66
June .. ..	.64	5	.24
July .. ..	1.55	6	.1
August .. ..	1.72	9	.55
September .. ..	.41	5	.22
October .. ..	.86	5	.29
November .. ..	.46	9	.19
December .. ..	3.18	10	1.15
	25.21	103	

The 1923 Rainfall was rather more than seven inches less than the previous year though the number of days on which rain fell is 103, one less only than in 1922.

(b) *Temperature.*

	Mean.	Highest Recorded.	Mean Maximum.	Lowest Recorded.	Mean Minimum.	Mean Humidity.	Mean 9 a.m. Humidity.	Mean 4 p.m. Humidity.
January	83.3	92.3	90.2	71.6	76.4	70.8	72.0	69.7
February	83.9	92.3	89.8	74.3	78.0	72.2	74.4	70.0
March ..	83.25	92.3	90.5	72.5	76.0	71.7	72.4	71.0
April ..	79.3	91.4	85.8	69.8	72.8	82.0	82.0	82.0
May ..	78.3	88.7	85.0	67.1	71.7	71.2	77.1	65.4
June ..	76.7	86.9	85.0	63.4	68.5	68.3	75.0	61.6
July ..	75.5	86.9	83.4	65.3	67.6	67.6	73.4	61.8
August	74.66	86.0	82.13	65.3	67.2	70.1	76.6	63.7
September	75.5	88.7	83.9	63.5	67.2	67.3	70.6	64.0
October	77.82	89.6	85.9	65.3	69.7	69.4	70.4	68.4
November	81.16	90.5	88.12	69.8	74.4	74.3	72.0	76.6
December	82.8	91.4	89.27	71.6	76.33	74.4	76.0	72.8

(c) *Malaria and Meteorology.*—It is convenient now to consider the curves for Malaria in conjunction with meteorological observations.

In the following charts there are represented the Malaria curves for three different nationalities and the flatter top of the curve in the relatively non-immune races is to be observed.

In association with these Malaria curves I have plotted the Rainfall, Mean Temperature and Humidity and the Anopheline larvæ finds.

The Anopheline larvæ curve and the Malaria curve of natives is identical, except it naturally anticipates the latter.

The mean Humidity and Temperature show no relation to the Malaria curve, though I still think the former is a main factor in the incidence of Malaria: it is hoped that in 1924 Humidity readings throughout the twenty-four hours will aid in elucidating the matter.

## H. ANTIVARIOLOUS LYMPH MANUFACTURE.

This has now become a routine matter and the general technique has been carried out by Mr. Hammond during the first ten months and then taken over by Sub-Assistant Surgeon Mr. Irvine during the latter two months

*Calf Stables.*—These remain as they were and no additions have been made. There are many disadvantages in having the stables where they are behind the Laboratory and in close proximity to the European Hospital, but with the present small Laboratory staff it would be impossible to undertake elsewhere the manufacture of lymph and ensure a safe product.

*The Calves.*—We still work in co-operation with the Veterinary Department who now have taken over complete charge of the vaccine herd and supply us with calves, two at a time, as we require them. The type of calf has not maintained quite the same standard and the supply of white heifers has not been as frequent as could be wished. The great difference in the take between light-coloured and black calves is quite remarkable. There have been no deaths among the calves and they have all taken when inoculated.

Eighty-two calves were inoculated during the year, varying from a maximum of ten a month to a minimum of two a month in October with an average of just under seven a month.

From these eighty-two calves over 510 grammes of vesicle pulp have been obtained, with an average of 6.2 grammes which is rather lower than the yield of 7.6 per calf in 1922. The average yield per calf in doses was 2,244.

It has been a matter of casual observation that the yield appears to be considerably better during the cooler months of the year (April-September), but at the same time those months are also conspicuous in yielding a much better type and more abundant fodder.

1923.

JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.

FROM BLOOD SLIDES  
MALARIA MONTHLY DISTRIBUTION  
IN % OF YEARS TOTAL.

i EUROPEANS

RAINFALL AS  
% OF YEARS TOTAL

MALARIA

MEAN TEMP.

ii ASIATICS

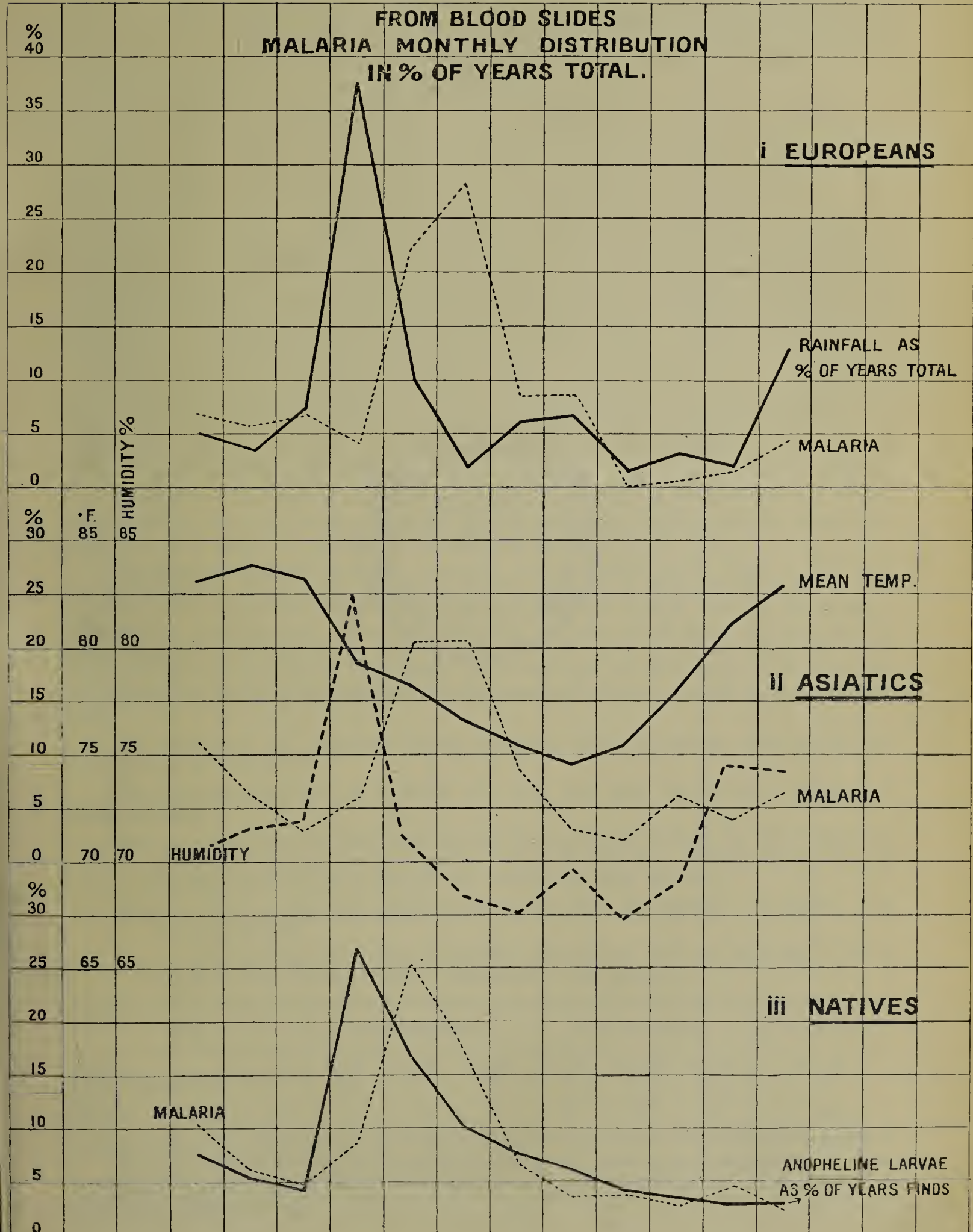
MALARIA

HUMIDITY

iii NATIVES

MALARIA

ANOPHELINE LARVAE  
AS % OF YEARS FINDS





*The Lymph* manufactured is still entirely the glycerinated variety and follows the Hendon method. The procedure of maintaining strict alternation between Calf and Monkey has kept the seed without any difficulty and with high virulence. The pedigree of the seed is kept in tree form and is quite an imposing one, showing its origin in 1921 from a Small-pox patient through the alternate hosts quoted above.

The procedure of manufacture has not been altered since first described in the 1921 report, except that the grinding machine is electrically driven.

The lymph is still stored in corked amber coloured glass phials holding just about  $1\frac{1}{2}$  ccs., which is sufficient for the inoculation of 100 individuals with three or four insertions. This lymph is kept as a routine for one month in an ice chest before issue is allowed.

*The Yield*.—During the year, 184,000 doses have been manufactured: the monthly output varying between 3,500 and 25,000, with a monthly average of over 15,000 doses. This has coped with the demand quite satisfactorily, and working at the average yield per calf there are facilities to increase the output to 250,000 doses with comparative ease. The capacity of the stables will not allow of an increase beyond 350,000 under any circumstances and should this likelihood arise, which would appear remote, arrangements would be necessary to manufacture lymph at another station.

*Bacteriology*.—All samples of lymph are stored at once in small phials containing 100 doses, corked and sealed with paraffin wax: in this state they are stored for a month in the ice chest and it is from one such tube that the bacteriology of the lymph is investigated. The common type of skin organism has been the only one met with in aerobic culture. Anærobic cultures have invariably been sterile.

*Transport*.—The original procedure of packing in crushed ice and sawdust in a wooden case is still in force, but in view of certain experiments, to be described shortly, it can have very little advantage if the destination is more than 24 or 36 hours away.

The experiment alluded to above was made with two lymph carrier boxes as advertised by Gallenkampf. These boxes are about 8 inches high by 4 inches broad each way and contains a silvered double layered glass container closed by a large cork and drops into a felt packing inside the box. The experiment was a simple one to determine how long the temperature of an ice mixture remained low and constant. The experiment was made in one case with the box open and a thermometer passed through the cork, while in the other the ice mixture was placed in the container, the box closed and allowed to stand on the Laboratory desk.

The experiment was performed during September when the average room temperature was between  $24^{\circ}$  and  $26^{\circ}$  C.

The accompanying table of readings will show that room temperature is reached in about 18 hours:—

*Box A*.—This box was kept open during the experiment though the felt lining was damped. The cork to the container was perforated by a thermometer so that the readings could be read without any interference with the box.

*Box B*.—The box was kept tightly closed except when the readings were taken. The felt was damped.

The readings were taken by rapidly removing the cork and replacing it with a duplicate cork through which a thermometer was passed:—

Date.	26th September.			27th September.			28th September.
Time .. .. .	2 p.m.	4 p.m.	6 p.m.	8 a.m.	12 noon.	4 p.m.	9 a.m.
Room Temperature $^{\circ}$ C. ..	26	26	25	24	25.5	26	25
Box A .. .. .	0	3	3	24	24.5	25.5	—
Box B .. .. .	0	3	3	18	20	22	23.5

*Results*.—Out of the 184,000 doses made during the year, 2,500 were used up for seed purposes and 155,000 doses issued to stations, leaving a balance of nearly 30,000 as a stock to commence the year 1924.

This is a very big increase, in reality, over the 178,000 doses for 1922 as the volume considered necessary to vaccinate 100 individuals has been increased from 1 to  $1\frac{1}{2}$  ccs.

The following list gives the results from the different stations :—

Issued to.	Amount.	Amount accounted for in Reports.	Not seen again.	Positive.	Modified Takes.	Percentage Takes.	Percentage Positive.	Percentage modified.	Percentage Failure.
Arusha ..	5,900	1,615	605	467	12	47.4	46.2	1.2	52.6
Bagamoyo ..	5,100	4,059	249	2,637	—	69.2	69.2	—	30.8
Bukoba ..	1,200	112	112	—	—	—	—	—	—
Dar-es-Salaam	1,700	—	—	—	—	—	—	—	—
Dodoma ..	7,100	6,912	390	5,987	—	90.4	90.4	—	9.6
Handeni ..	1,100	500	—	441	—	88.2	88.2	—	11.8
Iringa ..	6,300	5,150	360	2,589	1,171	78.6	54.0	24.6	21.4
Kasanga ..	1,300	300	—	118	—	39.3	39.3	—	60.7
Kilwa ..	7,500	3,606	549	2,501	—	81.0	81.0	—	19.0
Kilossa ..	1,200	1,200	67	599	285	78	52.8	25.2	22.0
Kigoma ..	1,400	538	56	193	—	40.0	40.0	—	60.0
Kondoa-Irangi	1,100	44	—	8	11	43.1	18.1	25.0	56.9
Lindi ..	7,300	3,455	2,195	626	151	61.8	49.8	12.0	38.2
Lushoto ..	2,200	2,067	323	1,152	317	84.2	66.1	18.1	15.8
Moshi ..	11,300	1,890	200	400	—	23.7	23.7	—	76.3
Masoko ..	11,100	—	—	—	—	—	—	—	—
Mahenge ..	2,200	2,118	—	1,227	19	58.8	58.0	0.8	41.2
Mafia ..	1,200	—	—	—	—	—	—	—	—
Mikindani ..	1,200	726	113	436	27	75.5	71.1	4.4	24.5
Mbulu ..	1,000	—	—	—	—	—	—	—	—
Morogoro ..	1,700	222	—	160	—	72.0	72.0	—	28.0
Mwanza ..	9,150	3,068	104	1,790	193	66.9	60.4	6.5	33.1
Mheza ..	1,600	400	—	300	—	75.0	75.0	—	25.0
Namanyere ..	1,000	1,026	225	329	69	49.6	41.0	8.6	50.4
Pangani ..	5,200	4,174	167	3,676	—	91.7	91.7	—	8.3
Shinyanga ..	1,200	418	81	116	—	34.4	34.4	—	65.6
Songea ..	2,200	500	—	273	127	80.0	54.6	25.4	20.0
Singidda ..	1,100	1,320	22	767	380	88.3	59.0	29.3	11.3
Tabora ..	9,100	9,813	3,257	4,517	975	83.7	68.9	14.8	16.3
Tanga ..	15,000	13,811	7,519	3,367	443	60.6	53.6	7.0	39.4
Tunduru ..	1,200	1,000	—	950	—	95.0	95.0	—	5.0
Tukuyu ..	1,100	439	77	219	—	60.5	60.5	—	39.5
Utete ..	5,100	4,247	649	1,828	722	70.8	50.8	20.0	29.2
Zanzibar ..	32,000	—	—	—	—	—	—	—	—
	155,050	73,730	17,320	37,673	4,902	75.4	66.7	8.7	24.6

It will be observed that slightly under 50 per cent. of the issues were reported upon, a great improvement for the year 1922 when only 21 per cent. approximately were quoted. The results are very similar to those for 1922, though nearly twice the number were reported upon. 75.4 per cent. of takes makes a satisfactory return when it is realised that in many instances vaccination must be quite indiscriminate.

The Zanzibar Government continued to obtain their supplies from us to the extent of 32,000 doses.

Comparative table for 1921, 1922 and 1923 is now given :—

	1921.	1922.	1923.
Calves inoculated ..	87	51	82
Grams of pulp .. ..	386.22	388.0	510.2
Lymph in ccs. .. ..	1,692.5	1,787.5	2,760.0
Total doses .. ..	169,250	178,750	184,000*
Doses issued .. ..	145,875	173,450	155,050*
Total reported upon ..	20,651	36,956	73,730
Percentage of "takes" ..	64.6	60.5	75.4

\* Dose now calculated at 100 to each  $1\frac{1}{2}$  ccs. whereas in previous years 1 cc. = 100 doses.

The following table records the cases of small-pox notified side by side with the quantity of lymph issued.

Year.			Small-pox Cases Notified.	Lymph Doses Issued.	Variety.
1920	..	..	830	?	Made in England.
1921	..	..	1,270	146,000	Locally made.
1922	..	..	390	173,000	„
1923	..	..	210	155,000	„

During the present year (1924) there is a considerable drop again in the notified cases of Small-pox.

#### I. SPECIAL INVESTIGATIONS.

*Kahns Test a new Flocculation Test for Syphilis and Yaws.*—Though this is described as a new test, really it can be no longer described as such as comments on it have already appeared in British medical papers, though, at the time I started the work, no record, except in foreign papers, had appeared. This short investigation was undertaken chiefly with a view of testing if it differentiated between Yaws and Syphilis—a very necessary attainment in view of the fact that the causative organisms, the treatment and the serological tests are identical: secondarily, to decide whether it was a method suitable to out-stations, and thirdly, because the end part of the Sigma re-action was found difficult to read. The technique of the test is simple and consists purely of the admixture of a special cholesterinized antigen to the patient's serum and observing the presence of flocculation after a period of incubation. A brief description of the method is detailed below.

The antigen is prepared as follows:—

The muscle tissue of an ox heart is finely minced and dried in the air completely and as rapidly as possible. There have been difficulties in this connection in this climate and standing in the sun has been resorted to. When thoroughly dry, it is pulverized in a mortar into a brown powder and put into a flask and covered with 1 inch of Ether and left in the ice chest for twenty-four hours, after this, the Ether is poured off and replaced by a fresh lot: this procedure is done three times when the powder is ready for extracting with alcohol after thoroughly drying the powder in order to drive off all the Ether. 100 cc. of absolute alcohol are added to each 20 grammes of powder and allowed to stand together for nine days in the ice chest and one day at room temperature and finally filtered from the powder. To each 35 ccs. of the alcoholic antigen is added .14 grammes of pure cholesterin: the balance of the antigen is not cholesterinized and is used in the control tests. This antigen is rapidly diluted shortly before making the tests in the following proportion: 1 part of antigen to 3 of Saline: the control non-cholesterinized antigen being used in the proportion of 1 to 2 of Saline. These diluted antigens are prepared shortly before the test and in no case has antigen older than an hour been used. They are opalescent fluids.

#### THE TEST.

Sera are inactivated as usually done in the Wasserman test, .6 of a cc. of each inactivated serum is pipetted into a small tube rather bigger than a Dreyers agglutination tube and to this is then added .1 cc. of the cholesterinized diluted antigen. The contents of the tube are thoroughly mixed and placed in a water bath at 37° C. and kept there overnight, the readings being made the next morning.

This has been the usual procedure, but it was subsequently decided to employ various dilutions of the sera in order to trace an end point: the dilutions of serum employed usually being (excluding the neat serum) 1 in 2, 1 in 4, 1 in 8, and onwards. These dilutions with saline are very easily made in a painters' porcelain palette for mixing water colours, which in the form in which I have, contains 21 little cup-like depressions, the dilutions being made by progressive halving of the strength of the serum by additions to equal volumes of saline. The results shown in the strongly positive cases can, as a rule, be read extremely easily, for there appears after the suitable interval a single coarse flocculus which may be at the surface or floating in the body of the fluid or as a precipitate.

The intermediate type of re-action consists of a coarse to fine agglutination of particles and in the negative case no visible particles at all. The fine re-actions are best observed with an ordinary hand lens. I have invariably employed progressive dilutions of the serum with a constant volume of antigen rather than keeping the serum strength constant.

The test has been tried as a ring test by carefully super-imposing the antigen on the serum, but has shown no advantages.

*Inhibition Zone.*—This has been fairly frequently observed and if the test had been employed with only one strength of serum the presence of that phenomenon would not have been noticed at all. As a rule this will only occur in the pure and 1 in 2 dilutions of serum. This phenomenon was only recognized in the later stages of the investigation and it is not possible to make many observations concerning it until further experience is gained.

*Infection of the Sera.*—This may happen quite easily and the results under these conditions are quite unreliable and should be discarded. The slighter infections are not easy to recognize, but any flocculus that is only at the surface requires careful inspection.

*The Kahn Test in Yaws and Syphilis.*—A total of 327 sera have been examined and I have tabulated these according to the diagnosis supplied with the specimens: they include all nationalities and it should be stated that frequently specimens have been sent up purely to clear up a doubtful diagnosis :—

KAHN TEST.

Diagnosis.							Strongly positive.	Positive.	Doubtful.	Negative.
(a)	Not stated .. .. .						7	5	7	22
	Chancre .. .. .						4	1	4	4
	Syphilis ? .. .. .						1	3	1	5
	Syphilis .. .. .						23	23	7	19
	"    ii .. .. .						12	11	3	3
	"    iii .. .. .						35	15	16	6
	Congenital Syphilis .. .. .						—	1	—	—
	Latent Syphilis .. .. .						—	2	—	2
(b)	Puerperal Insanity .. .. .						—	—	—	1
	Iritis .. .. .						1	—	—	—
	Yaws .. .. .						33	15	2	8
	"    i .. .. .						4	1	—	1
	"    ii .. .. .						2	1	1	—
	"    iii .. .. .						12	2	1	—

Amongst this series of cases I have marked two groups “ a ” and “ b ” respectively as a “ Syphilis group ” and a “ Yaws group,” to include those cases only that appear to have given rise to a fairly confident clinical diagnosis. If these cases are grouped together we obtain the following table :—

				Strongly Positive and Positive.	Doubtful and Negative.
“ Syphilis group ” .. .. .				122	56
“ Yaws group ” .. .. .				70	13

This then shows that the Kahn test shows 84.3 per cent. positive results in cases clinically Yaws as against 68.5 per cent. positives in cases clinically Syphilis.

This may be interpreted either :—

- (a) That the Kahn test is more sensitive in cases clinically called Yaws than in Syphilis,
- or (b) That the cases clinically called Syphilis are not so easily diagnosed correctly.

In order to elucidate this matter more closely the Kahn test should be examined side by side with the Wasserman test as is done in the succeeding sections.

*The Wasserman Test in Yaws and Syphilis.*—A series of cases of similar character, numbering 217, were examined from the point of view of the Wasserman re-action with the results tabulated below. The details of technique require no repetition as it was the technique usually employed :—

## WASSERMAN TEST.

Diagnosis.						Strongly positive.	Positive.	Doubtful.	Negative.
Not stated .. .. .						4	7	—	23
Chancre .. .. .						1	2	1	7
Syphilis ? .. .. .						2	—	—	2
(a)	Syphilis .. .. .					19	16	6	15
	" ii .. .. .					5	8	1	1
	" iii .. .. .					8	7	1	1
	Congenital Syphilis .. .. .					—	1	—	—
	Latent Syphilis .. .. .					—	1	—	2
(b)	Yaws .. .. .					28	16	7	13
	" i .. .. .					1	3	—	—
	" iii .. .. .					6	2	—	—

If these cases are classified into groups (*a* and *b*) of cases more or less definitely diagnosed on clinical grounds, the following figures are obtained :—

				Strongly Positive and Positive	Doubtful and Negative.
" Syphilis group "				65	27
" Yaws group "				56	20

This grouping then shows that the Wasserman test gives 70.5 per cent. positive results in cases clinically Syphilis as against 73.6 per cent. positives in cases clinically Yaws: these are results which may be considered identical in so far as a small series of cases can give it.

*Comparison of Kahn and Wasserman Test based on Clinical Diagnosis.*

Comparing the figures obtained in the last two paragraphs the following tables of results can be given :—

				Kahn Positive.	Wasserman Positive.
" Syphilis group "				68.5 %	70.5 %
" Yaws group "				84.3 %	73.6 %

The conclusion drawn from these figures may be that—

- The Wasserman test yields about the same percentage of positive results in Yaws and Syphilis ;
- The Kahn test appears to be more sensitive in the Yaws cases than the Syphilis group ;

but the argument that these results may be due to the greater ease in diagnosing Yaws clinically from Syphilis cannot stand in view of the similar results with the Wasserman test, and I think it can be conceded that the Kahn test is more sensitive in the clinically diagnosed Yaws group than in the clinically diagnosed Syphilis group. At present my figures are not sufficiently big to enable me to say whether any particular stage of Yaws or Syphilis gives more sensitive readings with Kahns test than others.

*The Kahn and Wasserman Test compared on Serological Results.*—The previous comparative observations on these tests have been based on the diagnosis supplied by clinical evidence alone and in such diseases as Yaws and Syphilis where the tertiary stages are indistinguishable and yet form the majority of cases examined, it is advisable to approach the question unbiased by clinical diagnosis and compare the results obtained in the laboratory alone. Unfortunately the number of cases in which the sera have been examined in parallel has not been large and is detrimental to obtaining a really satisfactory conclusion.

A total of 192 cases have been examined for this purpose and I have tabulated these irrespective of nationality or diagnosis as follows :—

Tests in agreement	{	Wasserman Positive	120	} = 81.2 per cent.
		Kahn Positive		
		Wasserman Negative	36	
		Kahn Negative		
Tests not in agreement	{	Wasserman Positive	12	
		Kahn Negative		
		Wasserman Negative	24	
		Kahn Positive		

That the tests are in agreement in 81.2 per cent. of the cases can be regarded as satisfactory, particularly is this so when it is remarked that some of these cases had been partially treated with Bismuth and that there is evidence that the Wasserman reaction is more easily affected by the treatment given than is the Kahn test : this latter observation will be examined further in another section.

The figure 81.2 per cent. quoted above is obtained from the examination of all types of cases, Syphilitic, Yaws or otherwise, and it may be concluded that in a very high percentage of cases the two tests are in agreement.

*The Effect of Treatment on the Test.*—During the course of the year a large number of cases of Yaws and Syphilis have been under treatment with Sodium Potassium Bismuth Tartrate, and though the cases are too few it will be of interest to trace the effect of this Bismuth treatment in the few cases available, and if the cases have been examined both with the Kahn Test and the Wasserman the results are probably of more value.

To detail each case individually would have no advantage and I have endeavoured to tabulate the results, and though the cases are few they give an indication of the effect of this Bismuth salt on the tests. I am tabulating the Wasserman test as well as the Kahn test in order to bring out the comparison.

Out of 25 cases examined, on at least two occasions during treatment the Wasserman test has improved in 18 = 72 per cent., while in 33 cases similarly under treatment and examined by the Kahn test only 16 or 48.5 per cent. showed any improvement, though clinically the improvement was often considerable.

If a comparison is made of the serological results at different periods in the treatment the following results are found :—

				Duration of Bismuth Treatment.			
				1 to 4 weeks.	5 to 8 weeks.	9 to 16 weeks.	17 to 36 weeks.
Wasserman Test	Greatly improved	..		3	2	1	5
	Improved	.. ..		3	3	1	—
	No change	.. ..		3	2	1	1
Kahn Test	Greatly improved	..		—	—	—	2
	Improved	.. ..		2	3	4	5
	No change	.. ..		7	7	3	—

It is interesting to note that while a considerable majority show a great improvement in the Wasserman test after quite a short Bismuth treatment, the Kahn test shows no great improvement until after some weeks of treatment. Apparently the Kahn test is not easily deflected by the Bismuth double Sodium Potassium salt.

Permanence of the effect of Bismuth treatment requires consideration and it is extremely difficult in this early stage to come to any conclusions, but I will quote one case and note at the same time that there are indications that it is by no means an isolated example, for a similar suggestion has been conveyed in other cases which have not been followed quite so

completely. The case is one of the later stage of Yaws and has been under Bismuth treatment for 5 months, but who latterly returned with recurrence after an interval of  $4\frac{1}{2}$  months without treatment. The details are given chronologically :—

- (a) 1st Test.—Wasserman not done positive, Kahn strongly positive.
- (b) Treatment for 6 weeks, 11 intramuscular injections of Bismuth gr. i.
- (c) 2nd Test.—Wasserman positive, Kahn strongly positive.
- (d) Treatment for 6 weeks, 8 injections Bismuth gr. i.
- (e) 3rd Test.—Wasserman negative, Kahn strongly positive.
- (f) Treatment for 8 weeks, 16 injections of Bismuth gr. i.
- (g) 4th Test.—Wasserman negative, Kahn positive
- (h) Interval of  $4\frac{1}{2}$  months without treatment.
- (i) 5th Test.—Wasserman strongly positive, Kahn strongly positive.

I have endeavoured also to classify the cases according to their clinical diagnosis and follow the effect of Bismuth treatment on each stage of Syphilis and Yaws, but the cases are too few to indicate whether Syphilis or Yaws is more amenable to Bismuth treatment ; however, such indications as there are suggests that there is no difference in the effect of Bismuth treatment on the two diseases.

The following summary appear to me to be indicated :—

1. Judged on clinical grounds.

The Kahn and Wasserman tests give approximately parallel results in Syphilis, but the former appears to be rather more sensitive in Yaws cases.

2. Judged on serological results, there is agreement between the Wasserman and Kahn tests in 81.2 per cent. of the sera sent for examination.

3. Bismuth Sodium Potassium Tartrate affects the Wasserman and Kahn tests similarly, but the former test is more easily influenced than the latter and appears to run *pari passu* with the clinical symptoms : the Wasserman test appears to be of less value than the Kahn test in judging the progress of a case.

B. REPORT TO THE P.M.O. ON A VISIT TO MOROGORO GAOL IN CONNECTION WITH AN OUTBREAK OF DIARRHŒA AMONG THE INMATES.

I left Dar-es-Salaam for Morogoro on the night of May 16th, 1923, with Dr. Owen, the Senior Sanitation Officer, and arrived back on the evening of May 19th.

The Native Hospital and remaining prisoner patients were inspected on May 17th, as was also the gaol. May 18th was also taken up with the sick patients.

*The Cases.*

There were eight patients convalescing from Diarrhœa in the Native Hospital. They were the remaining patients from an epidemic of 30 to 40 cases that had occurred during the previous 6 to 8 weeks, and had occasioned a high mortality. Five out of the eight no longer had Diarrhœa, two could not produce specimens and presumably were constipated, one alone had moderate Diarrhœa of a pea-soupy consistency to the extent of two motions in twenty-four hours.

The cases were as follows :—

Name.	Age.	In Gaol.	In Hospital.	Intestinal Parasites.	Remarks.
1. Kijasa .. ..	45	1 year	20 days	?	A re-admission has had scurvy.
2. Simba .. ..	50	10 years	37 "	?	Seriously ill, ? scurvy.
3. Abdulla .. ..	50	10 "	18 "	Ascaris ..	Ill, heart dilated.
4. Salimu .. ..	25	$1\frac{1}{2}$ "	16 "	" ..	Comparatively fit.
5. Eustace Abdallah ..	30	$2\frac{1}{2}$ "	17 "	Ascaris and Ankylost.	A re-admission.
6. Selemani .. ..	30	20 months	17 "	Ankylost ..	"
7. Kabukeni .. ..	40	13 "	8 "	Ascaris and Ankylost.	"
8 Mukuni .. ..	45	28 "	37 "	Ascaris ..	Ill.

Case I.—This patient has been one of four patients diagnosed as Scurvy by the Sub-Assistant Surgeon who has had previous experience of the disease. Has been previously in hospital for Diarrhœa which recurred one day after return to the Gaol. He was very debilitated, and his heart was dilated and pulse rate 96. I was unable to obtain a specimen of fæces. Gums not very spongy.

Case II.—Extremely ill, but not with Diarrhœa, and I was unable to obtain a specimen of fæces.

Debilitated with sunken eyes. Marked Anæmia. Ascites present. Heart feeble. Old adhesions in left chest with well-marked pleuro-pericardial rub.

Left calf muscles enlarged, hard and tender as were also the muscles in the middle half of the left femur. Gums not spongy.

Case III.—Stool constipated with coating of mucus. Ill and much debilitated. Heart enlarged. Pulse 48 with a very rough first sound. No special Anæmia or sponginess of gums.

Case IV.—The fittest and youngest of the patients. Stool formed. No Anæmia.

Case V.—Re-admitted with Diarrhœa after one day's return to Gaol. First admission apparently for Dyseentery. Stool semi-solid intermixed with mucus. No Amœbæ found. No œdema. Not anæmic. Heart normal.

Case VI.—Re-admitted with Diarrhœa after three days' return to Gaol. Stool solid. Heart distinctly feeble. Pulse 96.

Case VII.—Has been previously under treatment for Ankylostomiasis, but he is still infected. Oedema of ankles. Heart dilated with hæmic murmurs. Very anæmic. Gums not spongy. Re-admitted for Diarrhœa after one week's return to Gaol. Stool solid.

Case VIII.—An ill man with puffy face. Stools still loose. No œdema. Heart dilated. Pulse 84.

The main information that I gathered during my visit to these patients was :—

1. There had been four cases of Scurvy in the Gaol. One of the patients had been under treatment for the condition. Another possibly was a case of the disease. Five others might well be in a state of "latent Scurvy."
2. None had been in Gaol for less than one year.
3. All but one showed no signs of Diarrhœa, but all but one were debilitated and feeble individuals.
4. Each of six stools examined showed infestation with one or more intestinal parasites.
5. The diet of each patient had been 1 lb. of Rice and one big tin of Ideal milk only per diem, and this had been the diet in two cases for 37 consecutive days. The closing of the Indian shops had prevented the giving of tea recently.
6. The treatment of each case had been either a Bismuth or an Opium mixture.
7. Half the number of cases had had to be retaken into hospital after a day or so discharge. Either they were not convalescent or the Gaol dietary unsuitable.

*The Gaol.*—Accompanied by the S.S.O., I visited the prison and the following points were noted :—

1. Sick parade. This consisted of about one dozen men. As a group they were depressed and feeble individuals with well marked lassitude and mental torpor. Some had slight œdema of ankles. Their chief complaints were pain in the legs. Abdominal pain or other small disabilities. The majority were unfitted for any form of hard work.
2. Since the removal of the patient with Diarrhœa to the native hospital no new cases have occurred. No cases of similar illness had occurred among the native staff living in the immediate neighbourhood, but the gaoler himself had had an attack of Diarrhœa.

3. The association system was in vogue—the patients sleeping together. The floors were concrete and the conditions at this time of year must be distinctly cold and damp.
4. The Food. This consisted chiefly of cereals in some form, but chiefly maize. Potato and mohogo were added when available. Ghee was provided and meat given three times a month.

No green food had been available recently and no lemons, oranges or limes were provided.

The meal that was ready prepared at the time of inspection consisted of semi-cooked whole grain maize which was stated by the cooks to be preferred by the prisoners. It must have been extraordinarily irritating to a parasite infested intestine.

Some views on this dietary may not be out of place.

Maize is deficient in suitable protein value and its antiscorbutic value is nil if kept heated for long.

Other cereals similarly have no antiscorbutic value unless germinating.

Potatoes and Mohogo. Slight antiscorbutic value depending on time and method of cooking.

Ghee. No antiscorbutic value.

Meat. Slight antiscorbutic value depending on length of time of cooking. It would be best given semi-cooked, or possibly even as something similar to biltong or sundried fish.

The antiscorbutic principle in foodstuff is extremely sensitive to heat.

The dietary from the above would appear to be deficient in antiscorbutic value and probably also in Protein value.

With the advent of the vitamin conception prison dietary can no longer be considered to consist only in supplying food of an adequate caloric value. The caloric value may be very liberal, but a deficiency may exist in the necessary vitamin and this is more likely when there is but little variety in the food.

Complete deficiency of vitamins in a few months will lead to disease which force themselves on our attention and are easily recognisable. Relative deficiency may well be responsible for ill-health which defies diagnosis, but marked debility and lassitude in a collection of prisoners spells "latent Scurvy," and its development is accelerated by cold, damp and hard work.

Points that appear from the Gaol conditions that might influence an epidemic of Diarrhœa and its mortality rate :—

1. Dietary poor in antiscorbutic value and the prisoners living near the vitamin starvation level.

Green vegetables were difficult to obtain and nothing has been added to replace them and therefore a good many of the inmates were likely to be in a state of latent Scurvy.

2. Damp and cold owing to the rainy season and sleeping on a floor that must be chilling.
3. Association system of confinement would increase the opportunities for spread of disease.

#### *The Causative Organism.*

Nothing further could be elicited as the patients were convalescent from Diarrhœa. Three out of the four specimens sent from Morogoro to the Laboratory had previously shown the presence of *Bacillus Morgan* No. 1. Whether the infection was spread by flies or human carriers I have not elucidated.

*Mortality.*

This has been high, nearly 50 per cent. of the cases. Judging from the state of general health of the present patients it would not appear to be so surprising.

Reviewing the whole features connected with the Gaol and the outbreak, the following points seems to predominate :—

1. Debilitated individuals of long sentence who have been living on a coarse diet poor in antiscorbutic value for some time.

Four cases of declared Scurvy had been recognised among them. Such a few cases of this disease may appear unimportant, but they indicate that a danger exists and that probably a much larger number of prisoners are being affected by the same cause and further cases may arise or not according to the resistance of the individual, which probably means his possible store of reserve vitamins or his skill in obtaining them, which depends on the prison efficiency.

2. Each patient examined was found infected with intestinal parasites and the additional burden from the toxins of ankylostomes and other intestinal parasites super-imposed on a diet suggestively deficient in antiscorbutic value must be a severe one.
3. The advent of an infection such as could be caused by Morgan's bacillus on patients as described above is likely to be well-nigh overwhelming.
4. A daily diet of 1 lb. of rice and 1 tin of Ideal milk while a patient is in hospital would not appear to be a satisfactory one on which to build up the health of patients suffering from these conditions.
5. The primary cause of the mortality seems to me to be due to the debilitated condition of the patients resulting mainly from the unsatisfactory prison dietary.

*Recommendations.*

1. Improved prison dietary from the vitamin point of view, particularly for long sentence prisoners.
2. Disinfestation of all prisoners from Intestinal parasites on admission to a long sentence Gaol.
3. Regular reporting to the Medical Officer of any loss in weight of prisoners at a regular weekly inspection of every inmate of the Gaol.
4. Adoption of solitary cell system rather than association system as a means of prevention of spread of infection.

Sd. G. G. BUTLER,

*Director of Laboratory.*

Cu.

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